GORYUNOVA, N. A.

"Ternary compounds of $A^2B^4D_2^5$ and their properties."

report presented at the Gordon Research Conf on Chemistry & Metallurgy of Semiconductors, Tilton, N.H., 24-28 Aug 64.

Physico-Technical Inst, Leningrad.

SMARTSEV, Yuriy Vasil'yevich; VALOV, Yuriy Aleksandrovich; BORSHCHEVSKIY, Aleksandr Semenovich; GORYUNOVA, N.A., doktor khim. nauk, prof., red.; NASLEDOV, D.N., doktor fiz.-mat. nauk prof., red.

[Diamond-like semiconductors with high melting point] Tugoplavkie almazopodobnye poluprovodniki. Moskva, Metallurgiia, 1964. 207 p. (MIRA 18:1)

NASLEDOV, D.N., prof., red.; GORYUNOVA, N.A., prof., red.; GITSU, D.V., kand. fiz.-mat. nauk, red.; LANGE, V.N., kand. fiz.-mat. nauk, red.; RADAUTSAN, S.I., kand. fiz.-matem. nauk, red.

[Research on semiconductors; new semiconductor materials] Issledovaniia po poluprovodnikam; novye poluprovodnikovye materialy. Kishinev, Kartia Moldoveniaske, 1964. 173 p. (MIRA 17:5)

1. Akademiya nauk Moldavskoy SSR. Institut fiziki i matematiki.

AM4007951 BOOK EXPLOITATION S/

Goryunova, Nina Aleksandrovna

Chemistry of diamondlike semiconductors (Khimiya almazopodobny*kh poluprovodnikov) [Leningrad] Izd-vo Leningr. univ. 1963. 221 p. illus., biblio. Errata slip inserted. 4500 copies printed. Sponsoring Agency: Leningradskiy ordena Lenina gosudarstvenny*y universitet imeni A. A. Zhdanova.

TOPIC TAGS: semiconductor, diamondlike semiconductor, elemental semiconductor, isovalent binary compound, isovalent solid solution, ternary compound, complex compound, heterovalent compound, tetrahedral phase, diamond structure, lattice imperfection, lattice vacancy, interstitial occupancy

PURPOSE AND COVERAGE: This monograph is intended for scientists and aspirants in chemistry or physical chemistry who are working in semiconductor research and for advanced students specializing in theoretical and applied electronics and the chemistry of semiconductors. A systematic review of experimental material on the structure and physicochemical properties of all presently known

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AM4007951

diamondlike semiconductors is presented. Elemental semiconductors, binary, ternary, and more complex compounds with tetrahedral structures are covered. Basic ideas are outlined on the chemical investigation of prospective semiconductors. The book includes sections from the lectures on the chemistry of semiconductors delivered by the author at the chemical faculty of Leningrad University, (1958—1961). Thanks are expressed to N. K. Takhtareva, A. A. Vaypolin, Ye. V. Tsvetkova, V. I. Sokolova, L. V. Kradinova, E. Yu. Lubenska, and I. I. Ty*china of the Laboratoriya poluprovodnikov (Semiconductor Laboratory) at the Fiziko-tekhnicheskiy institut im. A. F. Ioffe (Physicotechnical Institute).

TABLE OF CONTENTS [Abridged]:

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AM4007951

SUB CODE: CH, MA SUBMITTED: 10Dec62 NO REF SOV: 237

OTHER: 356 DATE ACQ: 29Jul63

Card 3/3

L 61519-65 EWA(h)/EWT(1)/T LJP(c) AT

ACCESSION NR: AR5005454 S/0275/64/000/012/B002/B003

539.293:541.412

SOURCE: Ref. zh. Elektronika i yeye primeneniye. Svodnyy tom, Abs. 12B15

AUTHOR: Goryunova, N. A.

TITLE: Defect diamond-like semiconductors

CITED SOURCE: Sb. Issled. po poluprovodnikam. Kishinev, Kartya Moldovenyaske, 1964, 3-43

TOPIC TAGS: diamond like semiconductor, defect semiconductor

TRANSLATION: A review of the experimental investigations is presented of binary defect diamond-like semiconductors and derived solid solutions and complex [illegible] compounds were synthesized by [illegible] initial high-purity [illegible] in vacuum quartz vials at temperatures higher than their melting point, and in some cases in the atmosphere of spectrally pure argon. It is noted that the method of chemical transport reactions is very promising for growing defect compounds, particularly those with a high melting point. Properties of type $A_2^{III}B_3^{VI}$ compounds are considered, as well as pseudo-binary compounds of

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ACCESSION NR: AR5005454

$A_2^{III}B_3^{VI}$ — $A_2^{III}B_3^{VI}$, $A^{III}B^{V}$ — $A_2^{III}B_3^{VI}$; $A^{II}B_3^{VI}$ — $A_2^{II}B^{IV}$ — $A_2^{III}B_3^{VI}$ systems; also the system based on $A^{II}B^{IV}C_2^{VI}$ phases and ternary compounds of $A_2^{I}B^{II}C_4^{VI}$ type. The experimental results permit assuming that the defect compounds have some common properties. Association between the defect diamond-like semiconductors and the nondefect tetrahedral phases is evident. The defect diamond-like compounds interacting between themselves or with nondefect structural-ZnS compounds easily form both isovalent and heterovalent substitution solid solutions. Variation of the degree of defect and accordingly of the electron concentration deeply affects properties of these compounds. The "free-defect" concentration, specifically the cation vacancies, reaching 5.5×10^{21} per cm^3 in the type $A_2^{III}B_3^{VI}$ compounds has a bearing on the periodicity and distorts the crystal potential field which affects their physical characteristic. Some peculiarities of the defect-compound interaction and the ordering process in them are considered. It is noted that the defect compounds will find practical use in thermoelectric

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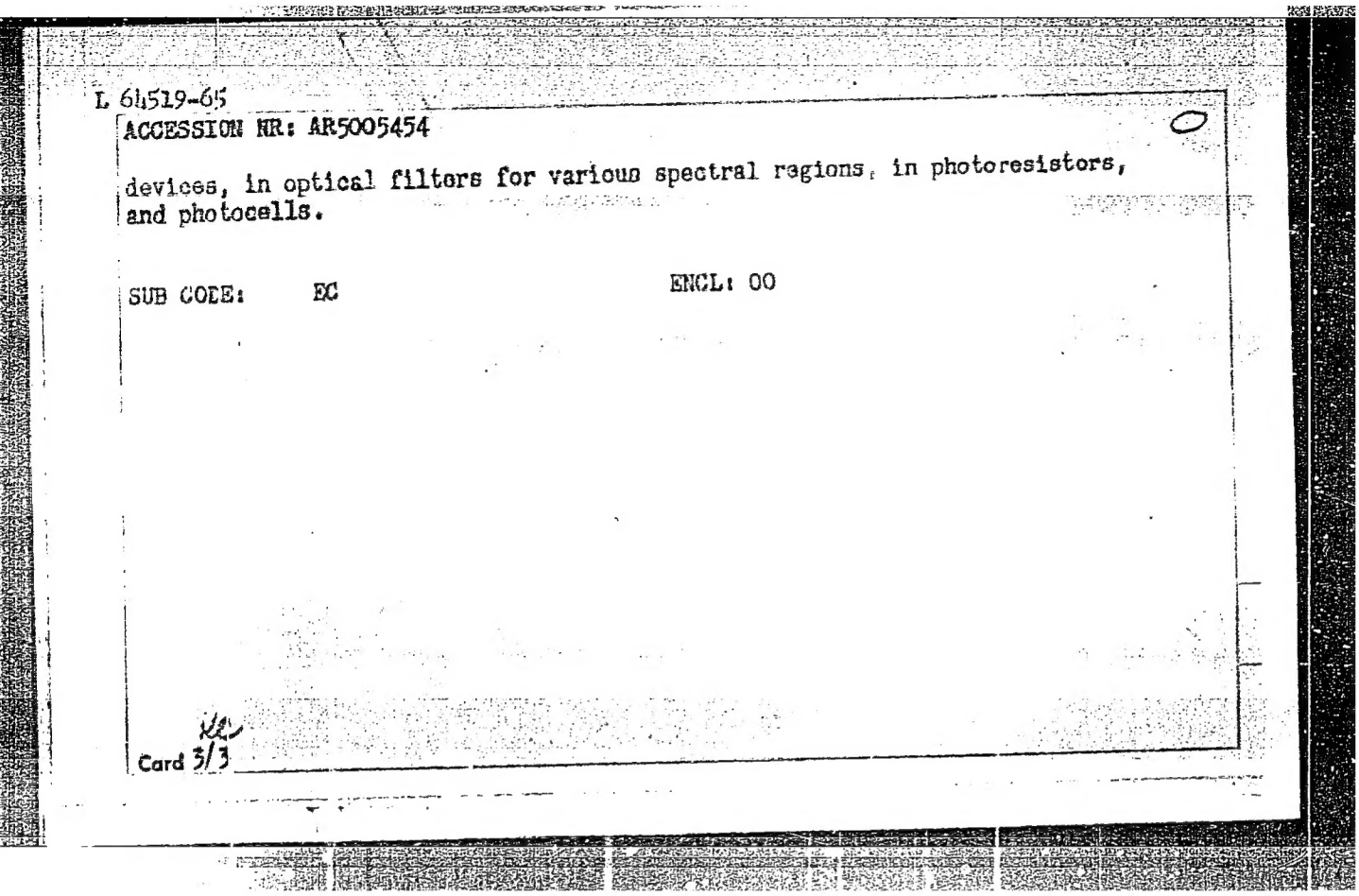

L 64519-65

ACCESSION NR: AR5005454

devices, in optical filters for various spectral regions, in photoresistors, and photocells.

SUB CODE: EC ENCL: 00

Card 3/3

L 12653-65 EWT(m)/EWP(b) AFWL/ASD(a)-5/ESD(t) JD/RDW/MLK
ACCESSION NR: AT4044562 S/0000/64/000/000/0044/0056

AUTHOR: Averkiyeva, G.K., Vaypolin, A.A., Goryunova, N.A., (Professor

TITLE: Some ternary compounds of the type A super I sub 2 B super IV C super VI sub 3 and solid solutions based on the m

SOURCE: AN MolSSR. Institut fiziki i matematiki. Issledovaniya po poluprovodnikam; novy*ye poluprovodnikovy*ye materialy* (Semiconductor research; new semiconductor materials). Kishinev, Gos. izd-vo Kartya Moldovenyaske, 1964, 44-66

TOPIC TAGS: ternary solid solution, semiconductor, cuprous germanium selenide, cuprous germanium sulfide

ABSTRACTS: Compounds of the type $A^I_2 B^{IV} C^{VI}_3$ with Cu and Ag for A^I, Ge and Sn for B^{IV} and S, Se and Te for C^{VI} were prepared by direct fusion of stoichiometric proportions of the elements in quartz vacuum ampoules in an effort to produce and evaluate new semiconductor materials. The compounds Cu_2GeS_3 (M.P. 955C), Cu_2SnS_3 (865), Cu_2 [illegible] Cu_2SnSe_3 (697), Cu_2GeTe_3 (492), and Cu_2SnTe_3 (4[illegible]) were investigated microstructurally by x-ray and from debyegrams. a PMT-3 device with a 50 g load was used to determine the microhardness, and the melting temperature and phase ratio were determined by thermal and microstructural analyses, respectively. The data showed that the melting temperature, lattice constant and microhardness are inverse functions of the sum of the atomic numbers of the structural elements of the compounds. The compound

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ACCESSION NR: AT4044562

Cu_2GeSe_3 was subjected to more elaborate structural studies on the basis of which diagrams of its formation (Fig. 1 of the Enclosure), the zero-network of its reversed lattice (Fig. 2), the distribution of Cu and Ge atoms in the (001) plane of the pseudo-lattice and the structural distribution of Cu and Ge atoms were prepared. A large number of solid solutions of Cu_2GeSe_3 - Cu_2SnSe_3, Cu_2GeSe_3 - Cu_2GeTe_3, Cu_2GeSe_3 - $CuGe_2Sb_3$, [illegible]Se_3 GaAs systems were also prepared and investigated. The results are preliminary. The thermal conductivity measurements were practically carried out by our Czech colleague Stourac." Orig. art. has: 3 tables and 5 figures.

ASSOCIATION: Institut fiziki i matematiki AN Mol SSR (Institute of Physics and [illegible] AN Mol. SSR)

SUBMITTED: 13Dec63 ENCL: 02 SUB CODE: IC, EC

NO REF SOV: 009 OTHER: 002

Card 2/4

L 12653-65

ACCESSION NR: AT4044562 ENCLOSURE: 01

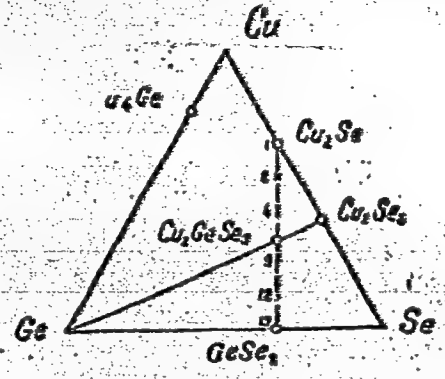

Fig. 1. Diagram of the formation of Cu_2GeSe_3.

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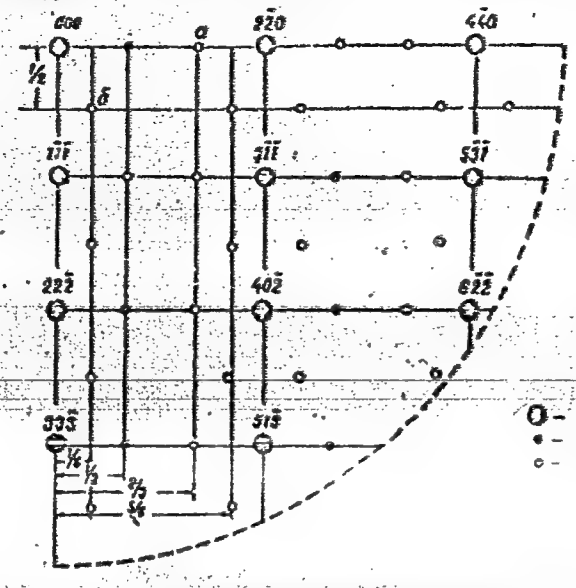
L 12653-65

ACCESSION NR: AT4044562 ENCLOSURE: 02



Card 4/4 Fig. 2. Zero-network of the reverse lattice of Cu_2GeS_3.

ACCESSION NR: AP4011746 S/0181/64/006/001/0113/0115

AUTHORS: Goryunova, N. A.; Kesamanly*, F. P.; Nasledov, D. N.; Rud', Yu. V.

TITLE: Electrical properties of p-ZnSnAs sub 2 crystals

SOURCE: Fizika tverdogo tela, v. 6, no. 1, 1964, 113-115

TOPIC TAGS: p-ZnSnAs sub 2 crystal, electrical property, chalcopyrite structure, Hall constant, specific conductivity, vacancy

ABSTRACT: The present work is a continuation of two other works (N. A. Goryunova, S. Mamayev and V. D. Prochukhan. DAN SSSR, 142, 623, 1962) and (F. M. Gashimzade. Izv. AN Azerb. SSR, ser. fiz. mat., 3, 67, 1963). It represents a study of electrical properties exhibited by $ZnSnAs_2$ single crystals. To resolve the contradictions pertaining to this substance, the authors carried out an x-ray analysis of crystals and proved their structure to be of chalcopyrite type with parameters: a = 5.8515 ± 0.0005 Å, c = 11.703 ± 0.001 Å. Samples used in this work were parallelepipeds 1.5 x 3.5 x 12 mm^3 cut from single crystals. They were tested for specific conductivity σ and for Hall constant R. Measurements were taken in direct current in a constant magnetic field. The study brought out the fact that this material exhibits

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inclusion conductivity throughout the whole range of temperatures tested. Between 150-200K there appears a pronounced maximum on the R - Temperature curve. The authors believe that this maximum can be explained with the help of a two-zone model. It is believed that quantitative determination of the valence zone structure in crystals of $ZnSnAs_2$ will require a complex investigation of the kinetic effects in crystals with various concentrations of vacancies. This will call for a study of R and σ at low temperatures (2-78K). The authors thank A. A. Vaypolin and T. S. Lagunova for their help in obtaining quantitative data, and F. M. Gashimzade and O. V. Yemel'yanenko for their evaluation of the work. Orig. art. has: 2 graphs.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physical and Technical Institute, AN SSSR); Institut fiziki AN AzerbSSR, Baku (Institute of Physics, AN AzerbSSR)

SUBMITTED: 12Jul63 DATE ACQ: 14Feb64 ENCL: 00

SUB CODE: PH NO REF SOV: 006 OTHER: 006

Card 2/2

ACCESSION NR: AP4041383 S/0048/64/028/006/1085/1089

AUTHOR: Vaypolin,A.A.; Gashimzade,F.M.; Goryunova,N.A.; Kesamanly*,F.P.; Osmanov, E.O.; Rud',Yu.V., Nasledov, D. N. (Doctor of physico-mathematical sciences)

TITLE: Investigation of the physical-chemical and electric properties of crystals of some ternary semiconductor compounds of the $A^{II}B^{IV}C_2^V$ type [Report, Third Conference on Semiconductor Compounds held in Kishinev 16 to 21 Sep 1963]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.6, 1964, 1085-1089

TOPIC TAGS: semiconductor, electric conductivity, Hall effect, crystal structure, cadmium compound, zinc compound, carrier mobility

ABSTRACT: Single crystals of the following semiconductors were obtained and their properties were investigated: $CdGeAs_2$, $ZnSiAs_2$, $CdSiP_2$, $ZnSnAs_2$ and $ZnSiP_2$. The method of synthesis is not described. X-ray diffraction showed the specimens to be single crystals with the chalcopyrite structure. The crystallography of these materials is discussed briefly, and the lattice parameters, density, hardness and melting point are tabulated. Both p-type and n-type crystals of $CdGeAs_2$ were obtained. Only p-type conductivity was found in the other two arsenides, and only n-type in

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ACCESSION NR: AP4041383

$ZnSiP_2$. Results of conductivity and Hall coefficient measurements over the temperature range from 90 to 600°K are presented graphically for an n-type $CdGeAs_2$ crystal, a p-type $CdGeAs_2$ crystal, and several $ZnSnAs_2$ crystals with different but unspecified impurity contents. The Hall coefficient of the n-type $CdGeAs_2$ was independent of temperature, and the conductivity increased with increasing temperature above about 150°K. The concentration of conduction electrons was approximately 10^{17} cm^{-3} and their mobility was 10^3 $cm^2/Vsec$. With the aid of thermoelectric measurements, the effective mass was estimated to be 0.027 electron masses. The Hall coefficient of the p-type $CdGeAs_2$ decreased rapidly with increasing temperature above 200°K and changed sign at 520°K. Neither the conductivity nor the Hall coefficient of the $ZnSnAs_2$ crystals varied greatly with temperature. The Hall coefficient exhibited a maximum at about 200°K which became less pronounced and shifted toward higher temperatures with increasing impurity content. This is ascribed to conduction in the impurity band. The band structure of the materials is discussed. The effective masses of the carriers in the conduction band and the V_2 and V_3 valence bands were calculated, and these and the gap energy are tabulated. All these quantities increased with decreasing molecular weight. The energy gap ranged from 0.53 to 2.5 eV, and the effective masses from 0.020 to 0.096, 0.035 to 0.19, and 0.12 to 0.49 electron masses for the C, V_2 and V_3 bands, respectively. Orig.art.has: 1 formula, 6

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ACCESSION NR: AP4041383

figures and 2 tables.

ASSOCIATION: Fiziko-tekhnicheskiy institut im.A.F.Ioffe Akademii nauk SSSR (Physico-technical Institute, Academy of Sciences, SSSR)

SUBMITTED: 00 ENCL: 00

SUB CODE: SS,IC NR REF SOV: 007 OTHER: 006

Card 3/3

ACCESSION NR: AP4016508 S/0020/64/154/005/1116/1119

AUTHORS: Vaypolin, A.A.; Goryunova, N.A.; Osmanov, E.O.; Rud' Yu. V.; Tret'yakov, D.N.

TITLE: Investigating $ZnSiP_2$, $CdSiP_2$, and $ZnSiAs_2$ crystals

SOURCE: AN SSSR. Doklady*, v. 154, no. 5, 1964, 1116-1119

TOPIC TAGS: high melting compound, forbidden zone, chalcopyrite, Debye crystallogram, right prism, phosphide crystal, xray diffraction, lattice spacing, electronic mobility, anisotropy

ABSTRACT: The lack of information on the $ZnSiP_2$, $CdSiP_2$ and $ZnSiAs_2$ crystals prompted an investigation into their structure by the use of x-ray and electric measurements. The phosphide crystals are transparent and vary in color ranging from ruby color for the $ZnSiP_2$ to light red for the $CdSiP_2$. The anistropy of the internal

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ACCESSION NR: AP4016508

structure of these crystals is projected to their external appearance; the phosphide crystals are divided into hexahedral, pentahedral and trihedral, according to their lateral faces. They are resistant to a variety of acids and alkalis. Optical measurements have made it possible to determine the width of the forbidden zone of the crystals under consideration. These $ZnSiP_2$ and $CdSiP_2$ parameters have thus been defined for the first time. The width of the $ZnSiAs_2$ forbidden zone was found to be less than 2.1 ev. The microhardness of the phosphidesis somewhat greater than that of their binary analogues, and their width is larger than that of the forbidden zone of the same order. As for the arsenides, their microhardness is of the same order as that of their binary analogues, and their forbidden zone is narrower. "The authors are grateful to B.P. Zakharchene and G.A. Sikharulidze for their assistance in determining the width of the forbidden zone. In conclusion, the authors express their gratitude to F.M. Gashimzade for a discussion of the results." Orig. art. has: 3 figures and 2 tables.

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ACCESSION NR: AP4016508

ASSOCIATION: Institut fiziki Akademii nauk AzSSR (Institute of Physics AzSSR); Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii nauk SSSR (Physico-technical Institute, Academy of Sciences SSSR)

SUBMITTED: 12Jul63	DATE ACQ: 12Mar64	ENCL: 00	
SUB CODE PH	NO REF SOV: 004	OTHER: 005	

Card 3/3

L 32230-65 EWP(e)/EWT(m)/T/EWP(t)/EWP(b) Pad IJP(c) JD/HW

ACCESSION NR: AP5007148 S/0286/65/000/003/0014/0014

AUTHOR: Valov, Yu. A.; Goryunova, N. A. 29 2

TITLE: Method of producing boron phosphide single crystals. Class 12, No. 167820

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 3, 1965, 14

TOPIC TAGS: boron phosphide, single crystal growth, fluxed melt crystallization, nickel phosphide flux

ABSTRACT: An Author Certificate has been issued for a method of producing single crystals of boron phosphide from a fluxed melt which was obtained by heating a mixture of boron phosphide and nickel phosphide to 1300C. The melt is kept at 1300C for 1 hr and then cooled in the furnace. [JK]

ASSOCIATION: none

SUBMITTED: 02Aug62 ENCL: 00 SUB CODE: SS, GC

NO REF SOV: 000 OTHER: 000 ATD PRESS: 3203

Card 1/1

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516410014-9"

L 60924-65 EWT(1)/T/EEC(b)-2/EWA(h) IJP(c) GG/AT

ACCESSION NR: AP5018922 UR/0363/65/001/006/0885/0889 27
546.289'48'19 21

AUTHOR: Goryunova, N. A.; Kesamanly, F. P.; Osmanov, E. O.; Rud', Yu. V. B

TITLE: Study of certain properties of CdGeAs sub 2

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 6, 1965, 885-889

TOPIC TAGS: cadmium compound, germanium compound, arsenic compound, semiconductor 27 27 27

ABSTRACT: The article examines the crystal structure, 21 phase transformations in the compound, and certain physical properties of $CdGeAs_2$ single-crystal samples. The compound was obtained from the elements by ordinary fusion. X-ray diffraction showed that its structure was that of chalcopyrite with constants a = 5.9427 ± 0.0005 A, c = 11.2172 ± 0.0005 A, and c/a = 1.8875. The region of homogeneity in the compound is very small, and thermal analysis showed the melting point to be at 665C. Quenching of molten $CdGeAs_2$ produced a glass (as in the case of $CdGeP_2$). Single-crystal n- and p-type samples of the compound were obtained. The electrical conductivity, Hall constant, the constant of the Nernst-Ettings-

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L 60924-65

ACCESSION NR: AP5018922

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hausen transverse effect, and the thermoemf were studied between 100 and 750K. The Hall mobilities of the electrons and holes at 300K are respectively equal [illegible] and ~150 cm^2/V sec. The effective electron mass, $m^* = 0.027\ m_0$, [illegible] determined from the thermoemf and Hall effect. "The authors express their appreciation to A. A. Vaypolin, F. M. Gashimzade, and N. O. Lipovskaya."

[illegible] art. has: 3 figures and 1 table.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe (Physicotechnical [illegible]), Institut fiziki AN AzerbSSR, Baku (Institute of Physics, AN AzerbSSR)

SUBMITTED: 27Feb65 ENCL: 00 SUB CODE: IC, SS

NO REF SOV: 009 OTHER: 005

Card 2/2

L 50527-65 EWT(1) IJP(c) GG
ACCESSION NR: AP5012534 UR/0181/65/007/005/1312/1314

22
AUTHORS: Goryunova, N. A.; Kesamanly, F. P.; Nasledov, D. N.; 21
Negreskul, V. V.; Rud', Yu. V.; Slobodchikov, S. V. B

TITLE: Electric and photoelectric properties of $ZnSiP_2$

SOURCE: Fizika tverdogo tela, v. 7, no. 5, 1965, 1312-1314

TOPIC TAGS: zinc compound, electric conductivity, temperature dependence, photoconductivity, spectral distribution, electric field dependence 21

ABSTRACT: Most published data on $ZnSiP_2$ pertain to its physicochemical properties only. The authors measured the temperature dependence of the electric conductivity and of the Hall constant of n-$ZnSiP_2$ in the temperature interval 80—670K, and the spectral distribution of the photoconductivity and its dependence on the electric field, the intensity of illumination, and temperature (80—290K).

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L 30527-65
ACCESSION NR: AP5012534

The crystals were grown by a method devised by one of the authors (Rud', with E. O. Osmanov, Registration Certificate No. 78432 of [illegible] June 1963). The samples had a surface of natural brilliance, and their regular form was attained by grinding. The crystals had an electron density ~(1—2) x 10^{17} cm^{-3} at room temperature and a Hall mobility ~70—100 cm^2/V-sec. The results are shown in Fig. 1 of the Enclosure. They are briefly analyzed from the point of view of the possible impurity level scheme and possible main transitions. The temperature dependence of the width of the forbidden band is found to have a constant $\alpha = -(7—8) \times 10^{-4}$ eV/°K. It is noted that carrier capture is especially effective at low temperatures, when the relaxation time of the photoconductivity is of the order of several minutes and decreases with rising temperature. Orig. art. has: 2 figures. [02]

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR (Physico-Technical Institute, AN SSSR)

Card 2/[illegible]

L 4442-66 EWT(1)/EWT(m)/EWP(t)/EWP(b) IJP(c) JD/AT

ACC NR: AP5020691 UR/0185/65/010/008/0867/0872

AUTHOR: Bychkov, O. H.; (Bychkov, A. G.); Goryunova, N. O.; (Goryunova, N. A.); Kesamanly, F. P.; Mityu'ov, V. K. (Mityurev, V. K.); Rud', Yu. V.; Slobodchykov, S. V. (Slobodchikov, S. V.)

TITLE: Electrical and photoelectric properties of $ZnSiP_2$

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 8, 1965, 867-872

TOPIC TAGS: electric conductivity, Hall constant, photoconductivity, zinc compound, temperature dependence, forbidden band

ABSTRACT: The temperature dependence of the electric conductivity, the Hall constant in the temperature range 80--670K, and the photoconductivity (its spectral distribution, dependence on the electric field, intensity of illumination, and temperature in the range 80--295K) were studied in n-type $ZnSiP_2$ crystals. The average size of the crystals was 8 x 1.5 x 0.3 mm. The investigated samples had an electron concentration of 1--2 x 10^{17} cm^{-3} and a Hall mobility of 70--100 cm^2/v-sec. The Hall and conductivity measurements were carried out with dc current with the aid of an ordinary potentiometer in a constant magnetic field. The photoconductivity was investigated by a compensation method utilizing unmodulated constant radiation. A type M 195/3 galvanometer was used to register the signal. The electric conductivity decreased sharply and the Hall constant increased sharply with decreasing temperature. This, together with the small electron mobility, indicates the presence of impurity com-

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ACC NR: AP5020691

pensation. The Hall electron mobility changes between 350 and 670K like T^{-1}. On lowering the temperature the mobility increases sharply. The ionization energy of the donor impurities was found to be 0.08 ev. Intrinsic photoconductivity was found to predominate at all investigated temperatures. Its maximum is shifted to the short-wavelength side with decreasing temperature. The width of the forbidden band, its variation with temperature, and the coefficient dependence of the photoconductivity on the electric field is linear up to fields of 20 v/cm when heating apparently becomes appreciable. At room temperature an acceptor level has been noted at 0.32 ev above the valence band. The activation energies of the donor and acceptor levels were also determined from the temperature dependence of the photoconductivity. Large relaxation times of the photoconductivity have been observed. An energy level diagram of the impurity transitions is proposed. "In conclusion the authors express their gratitude to Professor D. M. Naslyedov for support and discussion of the work." Orig. art. has: 5 figures.

ASSOCIATION: Kyyivs'kyy pedinstytut im. O. M. Hor'koho [Kiyevskiy pedagogicheskiy institut im. A. M. Gor'kogo] Kiev Pedagogical Institute

SUBMITTED: 19Sep64 ENCL: 00 SUB CODE: SS, OP

NR REF SOV: 007 OTHER: 004

Card 2/2

GORYUNOVA, N.A.; KIRENSKIY, L.V.; KLASSEN-NEKLYUDOVA, M.V.

Colloquium on solid state physics held in Rumania. Vest. AN SSSR 35 no.4:82 Ap '65. (MIRA 18:6)

L 64764-65 EWT(m)/EWP(b)/EWP(t) IJP(c) JD

ACCESSION NR: AP5022082 UR/0249/65/021/005/0013/0016

AUTHOR: Goryunova, N. A.; Abdurakhmanova, A. A.; Aliyev, M. I.

TITLE: Single-phase boundary near gallium antimonide in the gallium-antimony-tellurium system

SOURCE: AN AzerbSSR. Doklady, v. 21, no. 5, 1965, 13-16

TOPIC TAGS: semiconducting material, quasibinary system, semiconductor alloy, ternary alloy system, metal phase system, intermetallic compound, gallium compound, antimonide, telluride, phase diagram, solid solution, gallium antimonide, gallium telluride, pseudobinary system

ABSTRACT: The Ga—Sb—Te alloys of compositions along and between the pseudobinary sections (of the phase diagram) have been synthesized and analyzed by x-ray microphotographs, and by microhardness measurements to determine the region of complete solubility in the solid state near gallium antimonide. This study was undertaken to develop new semiconductor materials with given properties, which are based on solid solutions of $A^{III}B^{V}$—$A^{III}_2B^{VI}_3$ and $A^{III}B^{V}$—$A^{III}B^{VI}$ types. Some data were reported earlier on the properties of solid solutions in the In—Sb—Te system and on the existence of solid solutions near GaSb in the Ga—Sb—Te system. The alloys

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L 64764-65

ACCESSION NR: AP5022082

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were synthesized by a two-step melting of a mixture of pure elementary components in evacuated ampuls. Single-phase structure was identified in the compositions within the $(GaSb)_x(GaTe)_{1-x}$ section up to 16.4 mol% GaTe, in agreement with an earlier finding within the $(GaSb)_x(Ga_2Te_3)_{1-x}$ section up to 11 mol% Ga_2Te_3, and in the area of the triangular phase diagram between these two sections nearer GaSb. The solid solutions were formed only along the two pseudobinary sections indicated above, unlike the In—Sb—Te system in which they form along all existing pseudobinary sections. The single phase alloys along both sections obey the Vegard law. A study of the electrophysical and thermal properties of the selected homogenized alloys is forthcoming. Orig. art. has: 4 figures. [JK]

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe (Physicotechnical Institute); Institut fiziki AN AzerbSSR (Institute of Physics, AN AzerbSSR)

SUBMITTED: 09Jul64 ENCL: 00 SUB CODE: SS

NO REF SOV: 014 OTHER: 003 ATD PRESS: 4078

Card 2/2

L 55978-65 EWT(m)/T/EWP(t)/EWP(b)/EWA(c) IJP(c) JD

ACCESSION NR: AP5011813 UR/0080/65/038/004/0771/0778

537.311.33

19
18
B

AUTHOR: Goryunova, N. A.; Sokolova, V. I.; Chien, Ping-hsi

TITLE: Synthesis and certain properties of the compound $ZnGeAs_2$

SOURCE: Zhurnal prikladnoy khimii, v. 38, no. 4, 1965, 771-778

TOPIC TAGS: zinc compound, germanium compound, arsenic compound, crystal formation

ABSTRACT: Vertical directional crystallization was used for a continuous chemical reaction which produced (for the first time) the single-phase compound $ZnGeAs_2$ containing volatile components. The compound conforms to the pattern for formation of tetrahedral phases. X-ray diffraction and microstructural analysis show that $ZnGeAs_2$ is a single phase compound. Thermal analysis showed that this compound dissociates when melted. Thermal analysis and zone recrystallization revealed that a temperature maximum on the $ZnAs_2$-Ge pseudobinary section corresponds to $ZnGeAs_2$. Hence, the latter is a congruently melting compound which dissociates in the liquid phase, but not in the solid phase. Physical measurements were made on samples having a charge carrier concentration of $3.5 \cdot 10^{18}$ cm^{-3}. The value of the forbidden

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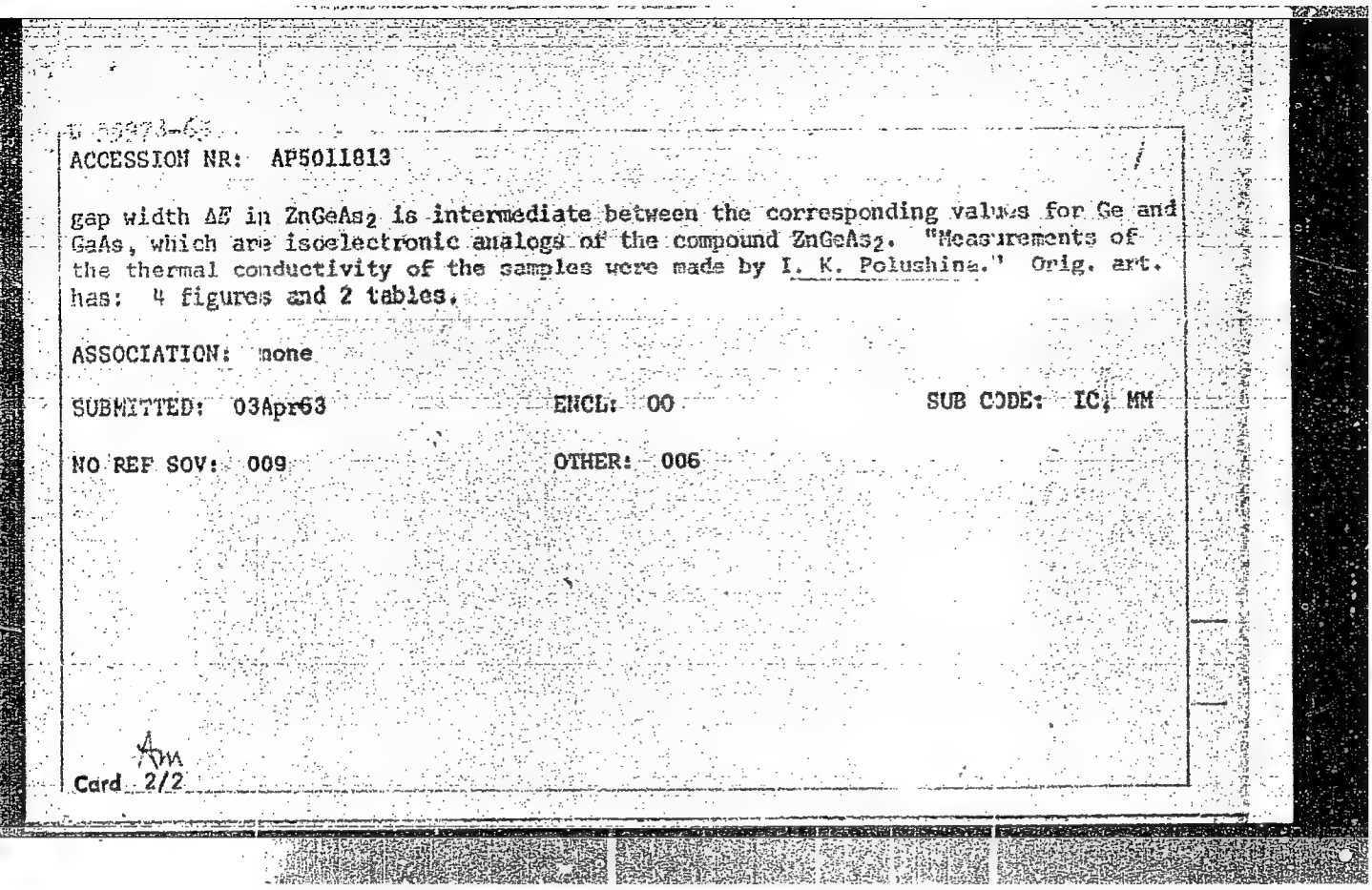

L 55273-65

ACCESSION NR: AP5011813

gap width ΔE in $ZnGeAs_2$ is intermediate between the corresponding values for Ge and GaAs, which are isoelectronic analogs of the compound $ZnGeAs_2$. "Measurements of the thermal conductivity of the samples were made by I. K. Polushina." Orig. art. has: 4 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 03Apr63 ENCL: 00 SUB CODE: IC, MM

NO REF SOV: 009 OTHER: 006

Card 2/2

L 27847-65 EWP(e)/EWT(m)/EWP(t)/EWP(b) Pq-4 IJP(c) JD/WH

ACCESSION NR: AP5005896 S/0020/65/160/003/0633/0634

AUTHOR: Vayrolia, A. A.; Goryunova, N. A.; Osmanov, E. O.; Rud , Yu. V. 30 29 B

TITLE: New glassy compounds

SOURCE: AN SSSR. Doklady, v. 160, no. 3, 1965, 633-634

TOPIC TAGS: glass compound, vitreous compound, compound semiconductor, ternary compound, cadmium germanium arsenic compound, cadmium germanium phosphorus compound, phase transition

ABSTRACT: Quite unexpectedly, a glassy state has been discovered during a study of high-temperature phase transitions in $A^{II}B^{IV}C_2^V$ semiconductor compounds, especially in $CdGeAs_2$. A single-phase glass ingot of $CdGeAs_2$ and a thin glassy layer of $CdGeP_2$ were obtained from melts at a high cooling rate (over 200C/sec). The physical and electric properties of the glassy $CdGeAs_2$ were compared with those of the crystalline $CdGeAs_2$. A relatively small change in density on transition into the glassy state and a correspondence between the diffusion peaks of the x-ray diffraction patterns of both states would indicate a similar short-range order, i.e., no change in the diamond-type structure of the $CdGeAs_2$ crystals. Orig. art. has: 2 figures and 1 table. [JK]

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L 27847-65
ACCESSION NR: AP5005896

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR (Physicotechnical Institute, AN SSSR)

SUBMITTED: 14Jul64 ENCL: 00 SUB CODE: MT, SS

NO REF SOV: 000 OTHER: 001 ATD PRESS: 3193

Card 2/2

L 11133-66 EWT(1)/EWT(m)/T/EWP(t)/EWP(b) IJP(c) JD/GG 66

ACC NR: AP6000875 SOURCE CODE: UR/0181/65/007/012/3655/3657

AUTHORS: Galavanov, V. V.; Goryunova, N. A.; Korshak, N. M.; Mamayev, S.; Nazarov, A.

ORG: Physicotechnical Institute im. A. F. Ioffe AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR)

TITLE: Some properties of p-$CdSnAs_2$

SOURCE: Fizika tverdogo tela, v. 7, no. 12, 1965, 3655-3657

TOPIC TAGS: cadmium compound, arsenic compound, tin compound, single crystal, electric conductivity, Hall coefficient, thermoelectric power, temperature dependence

ABSTRACT: Although the properties of n-type $CdSnAs_2$ have been described in the literature, there is no published information on the p-type compound. The authors have produced by single crystals of p-type $CdSnAs_2$ zone melting and measured the temperature dependence of the specific electric conductivity σ, the Hall coefficient R, and

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L 11133-66

ACC NR: AP6000875

the thermoelectric power α on two samples measuring 11.4 x 3.2 x 2.4 and 6.4 x 1.45 x 1.1 mm with hole densities 2.6 and 3 x 10^{17} cm^{-3} respectively at 100K. With increasing temperature the Hall constant reverses sign near room temperature, and σ varies like $T^{-0.575}$ with increasing temperature from 100K to room temperature, after which it increases sharply in the region of the transition to intrinsic conductivity. The differential thermal emf is positive at low temperatures at 180 μv/deg. At 380K it reverses sign and increases in absolute magnitude to 240 μv/deg. The width of the forbidden band at $0^{o}K$ was found to be 0.254 ev. The differences between the n-type and p-type samples is attributed to the difference in the carrier mobilities. The effective mass of the carriers is found to be 0.4 m_0. It is concluded that $CdSnAs_2$, like its iscelectronic analogs InAs and InSd, is characterized by a large electron/hole mobility ratio and a large hole/electron effective mass ratio. Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 28Jun65/ ORIG REF: 002/ OTH REF: 005

Card FW 2/2

L 43081-66 EWT(1)/EWT(m)/T/EWP(t)/ETI IJP(c) GG/JD

ACC NR: AR6011373 (A,N) SOURCE CODE: UR/0137/65/000/011/0039/0039

57
B

AUTHORS: Goryunova, N. A.; Averkiyeva, G. K.; Vaypolin, A. A.

TITLE: On the possibility of obtaining single crystals of polycomponent alloys

SOURCE: Ref. zh. Metallurgiya, Abs. 11G275

REF SOURCE: Sb. Fizika. Dokl. k XXIII Nauchn. konferentsii Leningr. inzh.-stroit. in-ta. L., 1965, 52-53

TOPIC TAGS: gallium, copper, selenium, arsenic, germanium containing compound, gallium arsenide, alloy, zone melting, annealing

ABSTRACT: The possibility of obtaining homogeneous single crystals of the quintuple system formed on the basis of Ga arsenide and the ternary compound Cu_2GeSe_3 was investigated. For synthesis of specimens starting with 60% ($3GaAs$)--40% Cu_2GeSe_3, the x-ray powder pictures show only one system of lines corresponding to the ZnS structure. The alloy lattice periods follow approximately the law of Vegard. However, a complete homogeneity of specimens was not achieved; the x-ray pictures showed lines of a second phase. Annealing did not remove these lines. Zone melting yielded an ingot, a 10-mm length of which had a one-phase structure. By the method of transport reaction, using iodine as the transporting agent, single crystals of the following composition were obtained: ~ 80% ($3GaAs$)--20% Cu_2GeSe_3, of size 3 x 2 x 2 mm. (From RZh. Fiz) [Translation of abstract]

SUB CODE: 11

UDC: 669.621.315

Card 1/1

L 47339-66 EWT(l)/EWT(m)/T/EWP(t)/ETI IJP(c) WW/JD/JG

ACC NR: AR602576 SOURCE CODE: UR/0058/66/000/004/A076/A076

AUTHOR: Zhitar', V. F.; Goryunova, N. A.; Radaytsan, S. I.

TITLE: Growth of single crystals from the gas phase in the zinc-indium-sulfur system

SOURCE: Ref. zh. Fizika, Abs. 4A638

REF. SOURCE: Sb. Simpozium. Protsessy sinteza i rosta kristallov i plenok poluprovodnik. materialov, 1965. Tezisy dokl. Novosibirsk, 1965, 9-10

TOPIC TAGS: single crystal growing, zinc containing alloy, indium containing alloy, sulfide, antimonide, uniaxial crystal, transport phenomenon

ABSTRACT: Conditions are developed for obtaining single crystal plates of the chemical compounds $ZnIn_2S_4$(I) and Zn_2Sb(II) by the method of gas-transport reactions using iodine as the carrier. The maximum dimensions of the obtained plates are 18 x 12 mm for I and 12 x 7 mm for II at ~ 0.1 mm thickness. The investigated ternary sulfides, and also their initial binary compounds, could be obtained by combining the synthesis reaction and the single-crystal growth reaction from the gas phase. To this end, initial elements of high degree of purity were used in a specified stoichiometric ratio. Crystals of compound II are optically uniaxial and have photoelectric properties. The possibility of applying the method of chemical transport reactions for doping I

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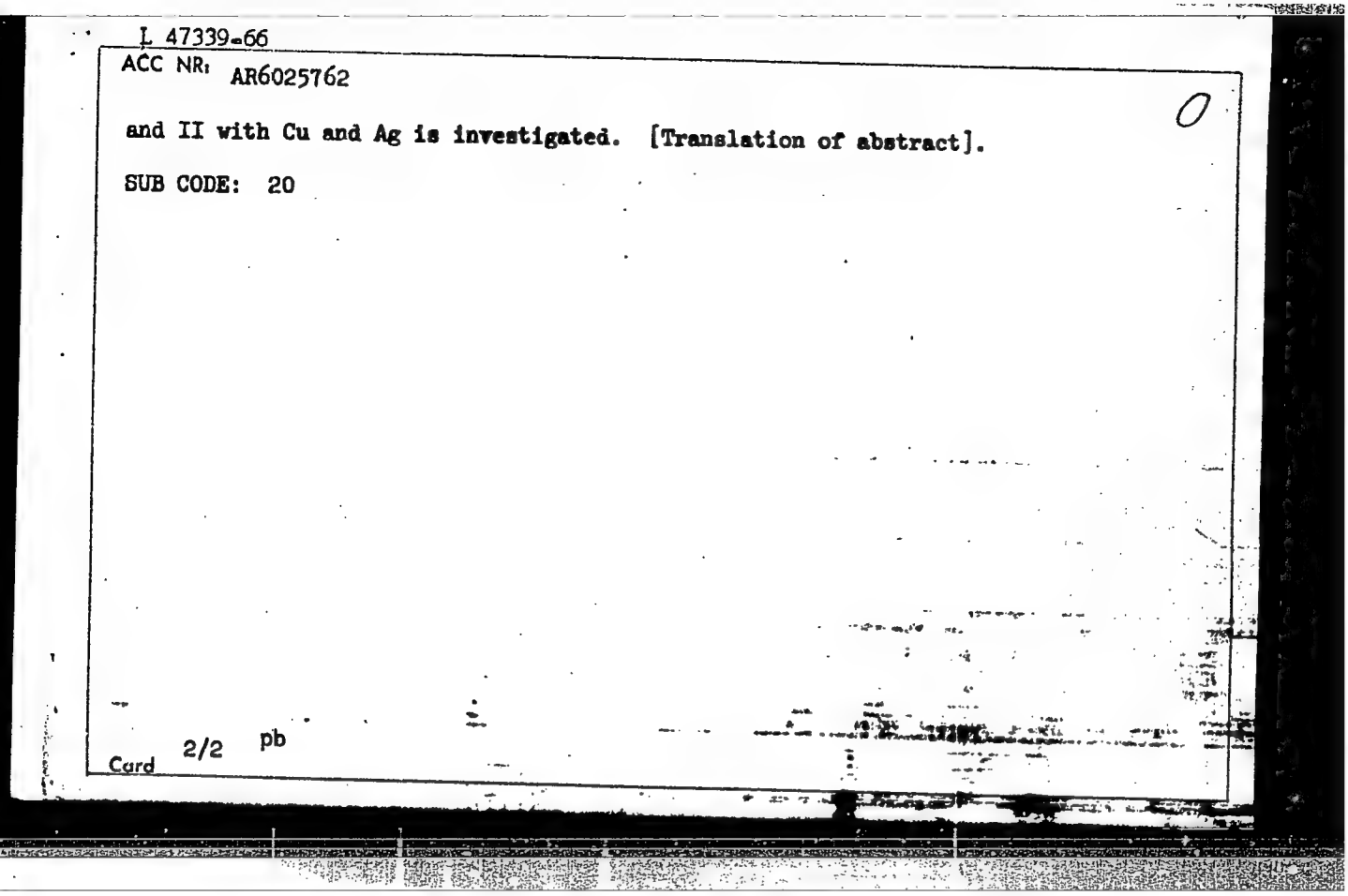

L 47339-66
ACC NR: AR6025762

and II with Cu and Ag is investigated. [Translation of abstract].

SUB CODE: 20

Card 2/2 pb

L 46579-66 EWT(m)/T/EWP(t)/ETI IJP(c) JG/JD

ACC NR: AR6017262 SOURCE CODE: UR/0058/65/000/012/E047/E048

AUTHOR: Goryunova, N. A.; Valov, Yu. A.; Zlatkin, L. B.

TITLE: Production and investigation of the properties of single crystals of $ZnSiP_2$, the ternary analog of gallium phosphide

SOURCE: Ref. zh. Fizika, Abs. 12E365

REF SOURCE: Sb. Fizika. Dokl. k XXIII Nauchn. konferentsii Leningr. inzh.-stroit. in-ta. L., 1965, 18-21

TOPIC TAGS: single crystal growing, alloy system, forbidden band, absorption edge, photoconductivity, spectral energy distribution, valence band, conduction band, electron transition

ABSTRACT: A gas transport method was used to obtain light red p- and n-type needle-like $ZnSiP_2$ crystals up to 10 mm long, and plate-like crystals measuring 6 x 1.5 x 0.1 - 0.3 mm. The crystal growth direction [111] coincides with the tetragonal c axis. Measurements were made of the absorption edge at 300, 77, and 4.2K of the spectral sensitivity of the photoconductivity at 300 and 77K, and of the dependence of the photoconductivity on the polarization of the exciting radiation. The sharp photoconductivity and absorption edge gives grounds for assuming the presence of direct transitions of the electrons from the valence band to the conduction band. The width of the forbidden band at 300° is ~2.13 ev. A. Porotikov. [Translation of abstract]

SUB CODE: 20

Card 1/1 hs

ACC NR: AP6015062 SOURCE CODE: UR/0363/66/002/005/0785/0795

AUTHOR: Goryunova, N. A.

ORG: Physicatechnical Institute im. A. F. Iaffe, AN SSSR. (Fiziko-tekhnicheskiy institut AN SSSR)

TITLE: Chemistry of semiconductors - a branch of inorganic chemistry

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 5, 1966, 785-795

TOPIC TAGS: chemical conference, semiconducting material, inert gas

ABSTRACT:

In a paper presented at the 20th Congress of the International Union of Pure and Applied Chemistry, * N. A. Goryunova, a leading Soviet authority in the field of semiconductors, discussed the problems encountered in the search for new inorganic compound semiconductors from the viewpoint of the laws governing the formation of the simplest inorganic compounds. The author, who is associated with the Ioffe Physicotechnical Institute of the Academy of Sciences USSR, attempted to establish a scientific basis for classification of the binary and ternary inorganic compounds, including semiconductors, from the viewpoint of crystal chemistry. Such a classi-

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fication would be analogous to the Periodic Table of the Elements. Certain isoelectronic series of compounds could be grouped together, and the groups of compounds could form a system on the principle of the chemical analogy of crystal chemical groups.

Goryunova states that the most suitable skeleton for such a unique system would be the group of compounds with coordination four and normal (highest) valence state of the atomic components. The compounds of this group would have a tetrahedral or octahedral structure. The IV A subgroup elements with diamond-type structure and the group of inert gases would be the two mirror symmetry axes of the suggested system of compounds. According to the author, the principle of chemical analogy as the basis of the system makes it possible to establish a common link between the compounds of different groups and, therefore, provides a solid scientific basis for the search for new materials, not only typical semiconductors but also compounds with intermediate properties.

Goryunova considers her book *Khimiya almazopodobnykh poluprovodnikov* (Chemistry of semiconductors with diamond-type analog structure)** to be the starting point for development of the proposed classification. The book presents an isoelectronic series of binary and ternary compound semiconductors with tetrahedral atomic arrangement analogous to that of the IV A subgroup of

elements. In the present study, new isoelectronic series of compounds were added. These were derived from the chemical analogy with the inert gas group of elements, and, consequently, included compounds with octahedral atomic arrangement. The binary compounds, structural analogs of the inert gases, are of the $A^{I}B^{VII}$, $A^{II}B^{VI}$, and $A^{III}B^{V}$ types; the ternary analogs of the inert gases are of the $A^{I}B^{III}C_2^{VI}$, $A_2^{I}B^{IV}C_3^{VI}$, $A_3^{I}B^{V}C_4^{VI}$, $A^{II}B^{IV}C_2^{V}$, and $A^{I}B_2^{IV}C_3^{V}$ types. The same combinations of elements were previously found in the isoelectronic series of semiconducting compounds, analogs of the subgroup IV A elements. This similarity in chemical composition of compounds which belong to two different atomic structures —octahedral and tetrahedral — led the author to believe that all these compounds are formed according to a common mechanism.

In addition to the five known chemical types of ternary compounds, Goryunova devised eight new types which may be formed with participation of transition elements and according to the same rules which were applied to establishing the known types of compounds with coordination four and maximum valence.

Further comparison of the isoelectronic series of the two crystal chemical groups makes it evident that the same mechanism applies to the

formation of covalent semiconductors and ionic compounds. Certain of the compounds of both crystal chemical groups exhibit properties intermediate to those of covalent and ionic compounds. The ternary compounds which combined the elements of various periods leaning either to the IV A subgroup or to the inert gases formed a separate group of the isoelectronic series. This group included the predominantly covalent compounds with a tetrahedral-type structure and the predominantly ionic compounds with a NaCl-type structure.

The predominantly ionic compounds of the two crystal chemical groups discussed, both binary and ternary, included the alkali halides and Na_2CO_3. However, Goryunova does not consider these compounds, even Na_2CO_3, as salts, on the grounds that they do not contain any acidic radicals.* Instead, she refers to them as salt-like (binary) or intermediate-(ternary) compounds. The existence, within the system, of this group of compounds with intermediate properties led the author to believe that the ionic and covalent compounds basically do not differ in respect to their electron configuration.

The classification of compounds which was suggested in the paper reviewed may not be, in the author's opinion, the only one possible. A number of other possible systems are discussed, all based on the principle

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of chemical analogy but construed around different symmetry axes, some of them imaginary, of the periodical system. Thus, isoelectronic series of compounds were tabulated with the average electron concentration equal to 5.33 and the maximum valence or with the concentration equal to 5 but with lower than maximum valence of the component atoms. The first of these groups of isoelectronic compounds was formed by analogy with CO_2, the second, by analogy with CO, as the prototype.

The newly established isoelectronic series of compounds include still undiscovered compounds, some of which predictably may have semiconductor or other valuable combinations of properties. The structure and properties of certain unknown compounds were estimated by the author on the basis of chemical analogy with the known compounds of the same series. Orig. art. has: 12 tables. [FSB: v. 2, no. 11]

SUB CODE: 20,07 / SUBM DATE: 06Aug65 / ORIG REF: 003 / OTH REF: 005

Card 5/5

L 08354-67 EWT(m)/EWP(w)/EWP(t)/ETI IJP(c) JD

ACC NR: AR6028126 SOURCE CODE: UR/0058/66/000/005/A069/A069

AUTHOR: Goryunova, N. A.; Baranov, B. V.; Grigor'yeva, V. S.; Kradinova, L. V.; Kryukova, T. V.; Prochukhan, V. D.

TITLE: Production and investigation of GaP-GaAs and GaAs-InAs solid solutions

SOURCE: Ref. zh. Fizika, Abs. 5A557

REF. SOURCE: Sb. Simpozium. Protsessy sinteza i rosta kristallov i plenok poluprovodnik. materialov, 1965. Tezisy dokl. Novosibirsk, 1965, 7-8

TOPIC TAGS: solid solution, gallium compound, indium compound, single crystal growing, crystal impurity

ABSTRACT: The possibility is investigated of obtaining single crystals of homogeneous solid solutions in a wide range of concentrations. The crystals were grown by the gas-transport method in a closed volume. The authors elucidate the influence of such factors as the zone temperature, the temperature difference between zones, and the chemical nature of the carrier, and its concentration on the evolution of the gas-transport reactions and on the habit and dimension of the crystals are clarified. Optimal conditions are established for obtaining single crystals of the required habit. Questions involved in the doping of crystals during gas-transport reactions are studied. A. Porotikov. [Translation of Abstract]

SUB CODE: 20

Card 1/1 nst

L 08335-67 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AR6017150 SOURCE CODE: UR/0275/66/000/001/B009/B009

AUTHOR: Goryunova, N. A.; Valov, Yu. A.; Zlatkin, L. B.

TITLE: Generation and analysis of the properties of $ZnSiP_2$

SOURCE: Ref. zh. Elektronika i yeye primeneniye, Abs. 1B65

REF SOURCE: Sb. Fizika. Dokl. k XXIII Nauchn. konferentsii Leningr. inzh.-stroit. in-ta. L., 1965, 18-21

TOPIC TAGS: single crystal, semiconductor crystal, crystal absorption, single crystal growth, crystal theory, gallium arsenide

TRANSLATION: Using the gas transport method, light red, needle-shaped, $ZnSiP_2$ crystals up to 10 mm in length, and plate-like crystals 6 × 1.5 × 0.1 to 0.3 mm were obtained. The direction of crystal (111) growth coincides with the tetragonal axis c. The following parameters were measured: the absorption region at 300, 77 and 4.2°K, the spectral sensitivity of photoconductivity at 300 and 77°K. A relation between the photoconductivity and the polarization of the excitation radiation was found to exist. Sharply defined regions of photoconductivity and absorption suggests direct transitions of electrons from the valency into the conductivity zone. The forbidden zone has a width of approximately 2.13 ev at 300°K.

SUB CODE: 20

UDC: 539.293:546.47.'28'18

Card 1/1 nst

ACC NR: AR6030494 SOURCE CODE: UR/0275/66/000/006/B014/B014

AUTHOR: Goryunova, N. A.; Baranov, B. V.; Grigor'yeva, V. S.; Kradinova, L. V.; Kryukova, I. V.; Prochukhan, V. D.

TITLE: Production and investigation of GaP--GaAs and GaAs--InAs solid solutions

SOURCE: Ref. zh. Elektronika i yeye primeneniye, Abs. 6B93

REF SOURCE: Sb. Simpozium. Protsessy sinteza i rosta kristallov i plenok poluprovodnik. materialov, 1965. Tezisy dokl. Novosibirsk, 1965, 7-8

TOPIC TAGS: single crystal growing, semiconductor crystal, solid solution

ABSTRACT: Single crystals from solid solutions of GaP--GaAs and GaAs--InAs systems were grown by the method of gas-transport reactions in a closed space. Effects of vaporization-zone temperature, crystallizer temperature, temperature difference between the cold and hot zones, geometric factors, and chemical nature were investigated. Also the problems of crystal doping in gas-transport reactions were clarified. GaP--GaAs and GaAs--InAs single crystals were produced in a wide concentration range. Optimal conditions for producing single crystals of desirable habitus were found. A possibility of doping single crystals in the gas-transport reaction was found. Some electric properties of single crystals were measured. N. G. and others. [Translation of abstract]

SUB CODE: 20

Card 1/1 UDC: 621.315.592.4:541.412

ACC NR: AT6036786 (N) SOURCE CODE: UR/0363/66/002/011/1966/1969

AUTHOR: Loshakova, G. V.; Plochko, R. L.; Vaypolin, A. A.; Pavlov, B. V.; Valov, Yu. V.; Goryunova, N. A.

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR (Fiziko-tekhnicheskiy institut AN SSSR); Kiev Pedagogic Institute (Kievskiy pedagogicheskiy institut)

TITLE: Production and some properties of the semiconductor compounds $ZnSnP_2$ and $CdSnP_2$

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 11, 1966, 1966-1969

TOPIC TAGS: zinc containing alloy, tin containing alloy, cadmium containing alloy, phosphorus containing alloy, semiconductor alloy

ABSTRACT: Previous attempts to obtain $ZnSnP_2$ from a mixture of components taken in stoichiometric ratio yielded a product containing a mixture of phases, including the ternary compound $ZnSnP_2$, but also zinc and tin phosphides. The present article describes a method for producing single phase $ZnSnP_2$ by crystallization from a dilute solution in tin. The initial weighed portion consisted of zinc, tin, and phosphorus, in which the tin was taken in large excess over the stoichiometric amount. After heating to a temperature of 870°C and slow cooling in an evacuated quartz ampoule, the

Card 1/2 UDC: 537.311.33

ACC NR: AP6036786

$ZnSnP_2$ was separated from the tin. The remaining thin film of tin on the $ZnSnP_2$ crystals was dissolved in concentrated nitric acid. The crystals of $ZnSnP_2$ were a dark gray color, and were 3 x 1, 5 x 0.5 mm in size. Analogous experiments with $CdSnP_2$ showed that it could be produced from a dilute solution in cadmium. X ray analysis of the compounds obtained made it possible to determine the type of crystal structure, the lattice constants, and the microhardness; these values are listed in tabular form. It was shown also that $ZnSnP_2$ has a considerable amount of chemical resistance to a number of mineral acids, including nitric, hydrochloric, sulfuric, and hydrofluoric, while $CdSnP_2$ has very little resistance to these acids. Orig. art. has: 1 figure and 2 tables.

SUB CODE: 11, 20/ SUBM DATE: 23Dec65/ ORIG REF: 001/ OTH REF: 002

Card 2/2

ACC NR: AP6036797 (A) SOURCE CODE: UR/0363/66/002/011/2078/2079

AUTHOR: Bychkov, A. G.; Plechko, R. L.; Valov, Yu. A.; Goryunova, N. A.

ORG: Physico-technical Institute im. A. F. Ioffe, AN SSSR (Fiziko-tekhnicheskiy institut AN SSSR)

TITLE: Some physical properties of the semiconducting compound $CdSiP_2$

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 11, 1966, 2078-2079

TOPIC TAGS: semiconductor alloy, cadmium containing alloy, silicon containing alloy, phosphorus alloy

ABSTRACT: Experiments were carried out on the production of single crystals of $CdSiP_2$ from metallic solution melts, as well as with the aid of chemical transport reactions, in which the source of the material was a ternary compound obtained from the solution melt, and in which the transport agent was iodine. By the solution method there were produced concretions of thin flat crystals, from which were cut single crystal samples with dimensions of 2 x 1.5 x 0.1 mm. By chemical transport reactions, there were produced thin needles with a length up to 10 mm, and thin plates (4 x 1.5 x 0.05 mm). The crystals of $CdSiP_2$ are soluble in concentrated acids and have a rather low thermal stability (their dissociation in vacuum at a pressure of 5×10^{-4} mm Hg starts at a

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UDC: 546.48'28'181:537.311.33

ACC NR: AP6036797

temperature of 450°C). All of the samples were found to have a conductivity of the n-type. In the samples grown from the solution melt, the following properties were determined (at room temperature): conductivity $\sigma \approx 5 \times 10^{-3}$ ohm^{-1}-cm^{-1}; mobility of the electrons $u = 150$ cm^2-v^{-1}-sec^{-1}; concentration of current carriers $n = 10^{15}$ cm^{-3}. With an increase in temperature there is a sharp drop in the Hall constant. With an increase in temperature, the conductivity increases, but the mobility of the current carriers falls, starting at 400°K. The samples obtained with the aid of chemical transport reactions had a conductivity of the order of 10^{-6} - 10^{-7} ohm^{-1}-cm^{-1}. An investigation of the spectral distribution of the photoconductivity at room temperature was made for both types of samples. For crystals grown from a solution melt, the maximum of photoconductivity was observed at a photon energy of 2.5 ev, while for crystals produced by chemical transport reactions, it was at 2.3d ev. The width of the forbidden zone for $CdSiP_2$ was determined, respectively, as 2.34 ev for crystals grown from solution melts, and 2.25 for crystals produced with the aid of chemical transport reactions. Orig. art. has: 1 figure.

SUB CODE: 20,07/ SUBM DATE: 25Jan66/ ORIG REF: 003/ OTH REF: 002

Card 2/2

ACC NR: AP7002398 SOURCE CODE: UR/0363/66/002/012/2125/2129

AUTHOR: Goryunova, N. A.; Grigor'yan, S. S.; Zlatkin, L. B.

ORG: Physicotechnical Institute im. A. F. Ioffe, Academy of Sciences, SSSR (Fiziko-tekhnicheskiy institut Akademii nauk SSSR)

TITLE: Structure of the conduction band of $ZnSiP_2$

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 12, 1966, 2125-2129

TOPIC TAGS: zinc compound, silicon compound, phosphide, conduction band, absorption edge, absorption coefficient, Hall effect

ABSTRACT: In order to obtain data on the structure of the conduction band of the compound $ZnSiP_2$ (a diamondlike semiconductor of type $A^{II}B^{IV}C_2^{V}$ and electronic analog of $A^{III}B^{V}$), the fundamental absorption edge of $ZnSiP_2$ single crystals was studied in the 1.5-2.7 eV range of photon energies at 300 and 77°K. The Hall effect and absorption coefficient α were measured on n-type $ZnSiP_2$ single crystals. The observed dependence of α^2 on the energy of incident photons, $\alpha \sim (h\nu - E_g)^{1/2}$, shows that the forbidden gap width of $ZnSiP_2$ is determined by direct allowed transitions at point K=0 of the Brillouin zone. The forbidden gap width $E_{g\ opt} = 2.00 \pm 0.01$ eV (T=300°K). The temperature coefficient of the forbidden gap width in the 77-300°K range is equal to 4×10^{-4} eV/deg. On the basis of the concentration shift of the fundamental absorp-

 UDC: 546.47'281'181.1

ACC NR: AP7002398

tion edge, the effective mass of a conduction electron of $ZnSiP_2$ was found to be 0.08 (using the formula of T. S. Moss), 0.074 (using the formula of E. Burstein), and 0.13 (using the formula of W. Kaiser and H. Y. Fan) for $n = 1 \times 10^{19}$ cm^{-3}. In conclusion, authors express their thanks to Corresponding Member AN SSSR Ye. F. Gross for discussing the results of the work. Orig. art. has: 4 figures and 4 formulas.

SUB CODE: 20/ SUBM DATE: 04Jan66/ ORIG REF: 009/ OTH REF: 007

Card 2/2

ACC NR: AP7001892 SOURCE CODE: UR/0020/66/171/004/0830/0832

AUTHOR: Borshchevskiy, A. S.; Goryunova, N. A.; Sikharulidze, G. A.; Tuchkevich, V. M.; Shmartsev, Yu. V.

ORG: Physicomathematical Institute im. A. F. Ioffe, Akademii nauk SSSR (Fiziko-matematicheskiy institut im. A. F. Ioffe, Akademii nauk SSSR)

TITLE: Preparation and some properties of $CdSnAs_2$ semiconductor compound

SOURCE: AN SSSR. Doklady, v. 171, no. 4, 1966, 830-832

TOPIC TAGS: cadmium tin arsenide, arsenide single crystal, single crystal growing, single crystal property, zone refining

ABSTRACT: A method for growing crack-free $CdSnAs_2$ single crystals is described. The synthesis was carried out in a quartz ampoule and pure-argon atmosphere at a stoichiometric proportion of components and a temperature of 750C. The obtained compound was then zone refined. Crystals up to 7 cm long and about 1 cm in diameter were grown from the zone-refined ingot by zone melting at 585—589C with a molten zone speed of 0.8 cm/hr. The respective properties of the specimens cut from the middle and end portions of the single crystal were: Hall constant 80 and 3.7 cm^3/coulomb,

Card 1/2 UDC: 537.311.33

ACC NR: AP7001892

resistivity $5 \cdot 10^{-3}$ and $4.9 \cdot 10^{-4}$ ohm·cm, electron concentration $7.8 \cdot 10^{16}$ and $1.7 \cdot 10^{18}/cm^3$, and mobility 16,000 and 7,650 $cm^2/v \cdot sec$. Orig. art. has: 1 figure and 1 table.

SUB CODE: 20/ SUBM DATE: 20Dec65/ ORIG REF: 003/ OTH REF: 006/ ATD PRESS: 5111

Card 2/2

ACC NR: AP7013140 SOURCE CODE: UR/0449/67/001/001/0141/0143

AUTHOR: Goryunova, N. A.; Tychina, I. I.; Khansevarov, R. Yu.

ORG: Physico-technical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR); Kiev State Pedagogical Institute im. A. M. Gor'kiy (Kiyevskiy gosudarstvennyy pedagogicheskiy institut)

TITLE: Some photoelectric properties of monocrystals of *n*-$CdGeP_2$ and p-$ZnGeP_2$

SOURCE: Fizika i tekhnika poluprovodnikov, v. 1, no. 1, 1967, 141-143

TOPIC TAGS: vapor pressure, photoelectric property, germanium single crystal, single crystal growing, IR photoconductor

SUB CODE: 20

ABSTRACT: The vapor pressures of all three components in the compounds tested in this article differ sharply. This makes the technology of production of monocrystals extremely complex, which explains the complete absence of information on the physical properties of these compounds in the literature. Using dual temperature systhesis, the authors developed a technique for synthesizing these compounds in consideration of the pressure kinetics of the vapors in

Card 1/2

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ACC NR: AP7013140

an ampule. The $CdGeP_2$ monocrystals were produced by directed crystallization from a stoichiometric melt at constant temperature gradient. This same method was used to produce crystals alloyed with tin, germanium, gallium, arsenic, bismuth and indium. The $ZnGeP_2$ monocrystals were produced by crystallization from a melt-solution. The first measurments of photoconductivity of these monocrystals showed that they have maximum photosensitivity in the visible and near infrared areas, which will possibly determine the area of their practical application. Orig. art. has: 1 figure. [JPRS]

Card 2/2

ACC NR: AP7006211 (A) SOURCE CODE: UR/0363/67/003/001/0180/0181

AUTHOR: Goryunova, N. A.; Borshchevskiy, A. S.; Venkrbets, Ya. Ya.; Korshak, N. M.

ORG: Physicotechnical Institute im. A. F. Ioffe, Academy of Sciences, SSSR (Fiziko-tekhnicheskiy institut Akademii nauk SSSR); Department of Solid State Physics, Prague Polytechnic Institute (Kafedra fiziki tverdogo tela, Prazhskiy politekhnicheskiy institut)

TITLE: Growing of $CdSnAs_2$ single crystals

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 3, no. 1, 1967, 180-181

TOPIC TAGS: cadmium compound, tin compound, arsenide, single crystal growing, zone melting

ABSTRACT: A single-crystal ingot of the semiconducting compound $CdSnAs_2$ was prepared by zone melting. The zone temperature was 600°C, and the gradient at the crystallization front, 20 deg/cm. After one pass of the zone at a rate of 8 mm/hr, an ingot was obtained whose first half was a single crystal, whose middle portion contained twins, and whose end was macrocrystalline and contained cracks. The mechanism of formation of cracks is explained. The ingot had an n-type conductivity. The electrical conductivity σ, carrier concentration $n = 1/eR$ and Hall mobility $U = R\sigma$, where R is the Hall coefficient, were measured at 100 and 300°K. It is shown that the chief mechanism of electron scattering in n-$CdSnAs_2$ with $n \geq 1 \times 10^{18}$ cm^{-3} at

Card 1/2 UDC: 546.3-19-48-811-19+548.55

ACC NR: AP7006211

low temperatures is scattering on impurity ions. During zone recrystallization, the impurities are separated, as indicated by the measured mobilities of the charge carriers. The zone melting method is thought to be effective for growing pure $CdSnAs_2$ single crystals with high electron mobilities. By carrying out the zone melting repeatedly and using a single crystal seed, the authors obtained $CdSnAs_2$ ingots in which individual single crystal grains were up to 50 mm in size. The $CdSnAs_2$ single crystals obtained had an electron concentration from 7×10^{16} to 5×10^{18} cm^{-3} at 300°K. Orig. art. has: 1 figure and 1 table.

SUB CODE: 20/ SUBM DATE: 20Dec65/ ORIG REF: 004/ OTH REF: 005

Card 2/2

BISKE, G.S., starshiy nauchnyy sotrudnik. Prinimali uchastiye: LAK, G.TS., mladshiy nauchnyy sotrudnik; GORYUNOVA, N.N., SLODKEVICH, V.S., prof., doktor geologo-mineral.nauk, nauchnyy red.; GENDELEV, D.Z., red.; SHEVCHENKO, L.V., tekhn.red.

[Quaternary sediments and the geomorphology of Karelia] Chetvertichnye otlozheniia i geomorfologiia Karelii. Petrozavodsk, Gos.izd-vo Karel'skoi ASSR, 1959. 307 p. (MIRA 12:12)
(Karelia--Geology)

BISKE, G.S.; GORYUNOVA, N.N.; LAK, G.TS.

Holocene in Karelia. Trudy Kar. fil. AN SSSR no.11:28-82 '59.
(MIRA 13:2)
(Karelia--Geology, Stratigraphic)

GORYUNOVA, N.N.

Age of peat bog sediments of Karelia. Trudy Kar. fil. AN SSSR no.26:158-162 '61. (MIRA 14:7)
(Karelia—Peat bogs)

FRUMINA, N.S.; GORYUNOVA, N.N.; MUSTAFIN, I.S.

Spectrophotometric study of bis-(4-sodium-5-tetrazolylazo)-ethyl acetate in aqueous solutions. Zhur. anal. khim. 21 no. 1:7-12 '66 (MIRA 19:1)

1. Saratovskiy gosudarstvennyy universitet imeni Chernyshevskogo.

ISMAILOV, I.M., kand.tekhn.nauk; MAKHMUDOV, A.U., inzh.; KLEPIKOV, V.G., inzh.; Prinimali uchastiye: GORYUNOVA, N.P.; VORONINA, L.D.; BARTOSH, F.K.; SOLDATKIN, P.S.; KORNEYCHUK, G.P.; KHAMIDOV, N.Kh.; SHUL'ZHENKO, I.P.

Method of grist conditioning according to moisture. Masl.-zhir.prom. 28 no.11:37-39 N '62. (MIRA 15:12)

1. Sredneaziatskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta zhirov (for Ismailov, Goryunova, Voronina, Bartosh). 2. Kattakurganskiy maslozhirovoy kombinat (for Makhmudov, Soldatkin, Korneychuk, Khamidov, Shul'zhenko).
(Oils and fats)

TSKILIS, D.S.; SHENDEREY, L.I.; Prinimala uchastiye GORYUNOVA, N.P.

Solubility of oxygen-nitrogen mixtures in toluene. Khim.prom. no.9:690-691 S '63. (MIRA 16:12)

TSIKLIS, D.S.; SHENDEREY, L.I. Prinimala uchastiye GORYUNOVA, N.P.

Phase equilibria in the system ber[illegible]ic acid - toluene - nitrogen.
Khim. prom. 40 no.11:841-843 N '64 (MIRA 18:2)

ACCESSION NR: AP5005364 S/0109/65/010/002/0387/0388

AUTHOR: Goryunova, O. F.; Zakhvatayeva, O. I.; Kontsevoy, Yu. A.

TITLE: Effect of magnetic field on current-voltage characteristics of p^+-p-p^+ structures

SOURCE: Radiotekhnika i elektronika, v. 10, no. 2, 1965, 387-388

TOPIC TAGS: semiconductor device, current voltage characteristic

ABSTRACT: A Ge plate with a resistivity of 10—30 ohm-cm and two ohmic contacts (see Enclosure 1) was tested in parallel and perpendicular magnetic fields up to 4,300 oe. The voltage V, increased when the magnetic field was

ASSOCIATION: none

SUBMITTED: 31Jan64 ENCL: 01 SUB CODE: EC

NO REF SOV: 001 OTHER: 003

Card 1/2

GORYUNOVA, O.F.

Dynamic properties of small area ohmic contacts in semiconductors. Radiotekh. i elektron. 10 no.6:1123-1126 Je '65.
(MIRA 18:6)

L 23681-66 EWT(1) AT

ACC NR: AR6005223 SOURCE CODE: UR/0058/65/000/009/E080/E080

AUTHOR: Goryunova, O. F.

TITLE: Investigation of an instrument based on the breakdown of a semiconductor in a strong electric field

55
B

SOURCE: Ref. zh. Fizika, Abs. 9E677

REF SOURCE: Sb. Proboy dielektrikov i poluprovodnikov. M.-L., Energiya, 1964, 325-327

TOPIC TAGS: dielectric breakdown, semiconductor crystal, volt ampere characteristic, ionization, electric resistance, germanium, junction diode

TRANSLATION: An instrument is described, having an S-shaped volt-ampere characteristic with a negative-resistance section, arising as the result of cascade ionization during electric breakdown and formation of electron-hole pairs. The time lag of the instrument when operating in the negative-resistance section is $\sim 10^{-9}$ sec, if the region of the conductivity modulation under the point contact is of the order of 100 μ. Three methods are described for obtaining similar instruments with n- and p-Ge. The instrument can be used in circuits employing p-n-p-n junctions and cascade diodes. Bibliography, 8 titles. M. Aver'yanova.

SUB CODE: 20

Card 1/1

GORYUNOVA, R.V.

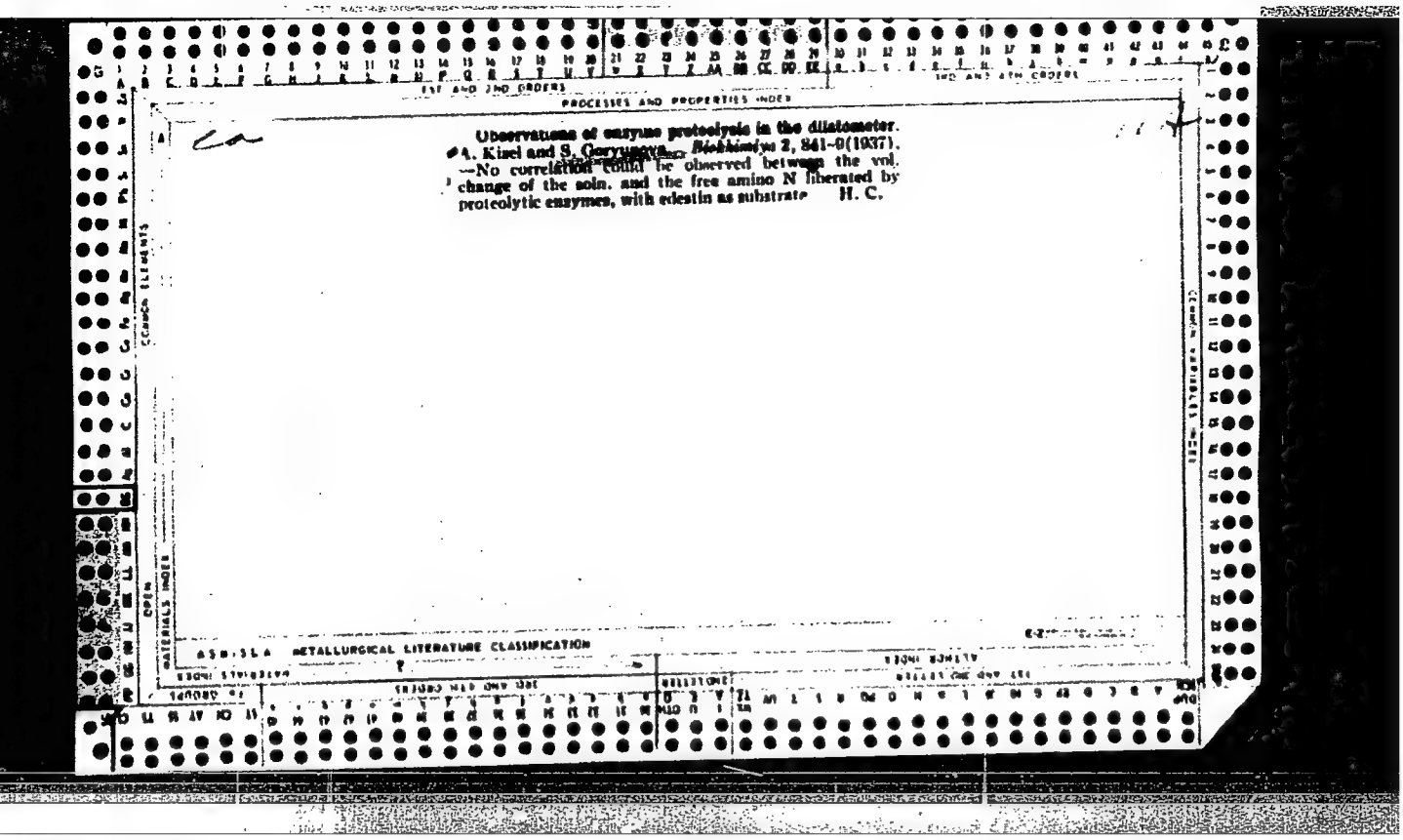
Early Kazan Fistuliporidae of the Russian Platform. Paleont. zhur. no.3:47-51 '64. (MIRA 18:2)

1. Paleontologicheskiy institut AN SSSR.

GOR'UNOVA, S. P.

.R93612

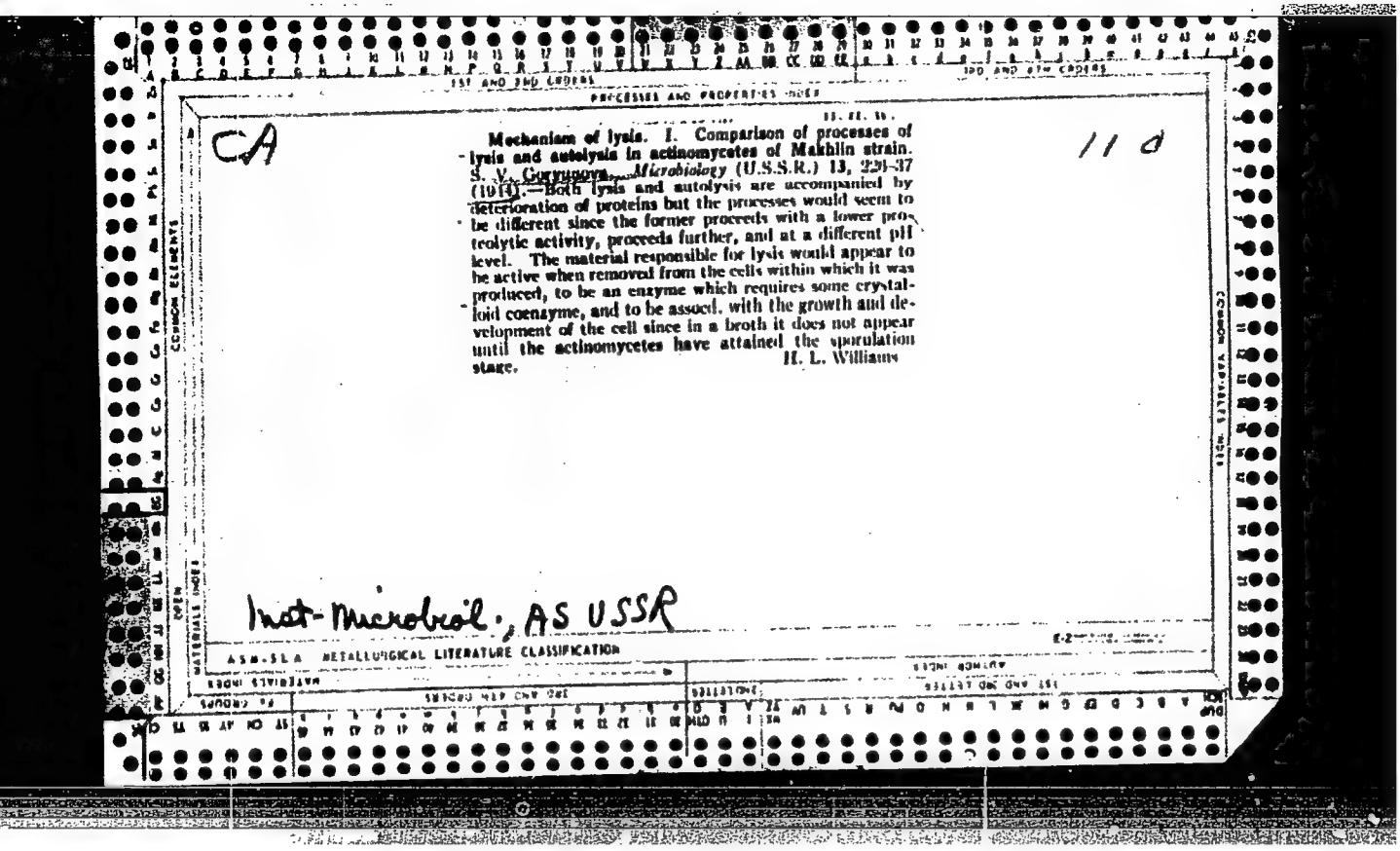
SOKHRANENIYE I POVYSHENIYE PLODORODIYA POCHVY PRI OSVOYENII TSELINNYKH ZEMEL'
(NEW METHODS FOR CONSERVATION AND INCREASED FERTILITY OF VIRGIN SOILS, BY)
S. P. GOR'UNOVA, V. A. FRANTSESON, (1) N. P. ISAYENKO. MOSKVA, SEL'KHOZGIZ, 1957.
180 P. ILLUS., TABLES.



PROCESSES AND PROPERTIES INDEX

Observations of enzyme proteolysis in the dilatometer.
A. Kisel and S. Goryunova. *Biokhimiya* 2, 841-8(1937).
—No correlation could be observed between the vol. change of the soln. and the free amino N liberated by proteolytic enzymes, with edestin as substrate H. C.

METALLURGICAL LITERATURE CLASSIFICATION



CA

11 d

Mechanism of lysis. I. Comparison of processes of lysis and autolysis in actinomycetes of Makhlin strain. S. V. Gorgunova. *Microbiology* (U.S.S.R.) 13, 229–37 (1944).—Both lysis and autolysis are accompanied by deterioration of proteins but the processes would seem to be different since the former proceeds with a lower proteolytic activity, proceeds further, and at a different pH level. The material responsible for lysis would appear to be active when removed from the cells within which it was produced, to be an enzyme which requires some crystalloid coenzyme, and to be associ. with the growth and development of the cell since in a broth it does not appear until the actinomycetes have attained the sporulation stage. H. L. Williams

Inst. Microbiol., AS USSR

GORYUNOVA, S. V.

PA 2/49163

USSR/Medicine - Plankton May/Jun 48
Medicine - Microorganisms

"Dissolved Organic Substances in Open Reservoirs," S. V. Goryunova, 11 pp

"Mikrobiol" Vol XVII, No 3

General review of history of subject, from Putter's investigations into plankton food in 1907. Tables give analyses of various seas and lakes.

2/49163

GORYUNOVA, S. V.

Jun 1948

USSR/Medicine - Algae
Medicine - Secretion

"Lifetime Secretion of Vegetable Acids in the Surrounding Water Medium by Blue-Green Algae 'Oscillatoria,'" S. V. Goryunova, Microbiol Inst, Acad Sci USSR, 3 pp

"Dok Ak Nauk SSSR" Vol LX, No 8

Data on the secretion of various vegetable acids by subject algae is first published discussing the capability of water plants to secrete these vegetable acids during the process of converting the media surrounding the plant. Submitted by Acad B. L. Isachenko 3 Apr 1948.

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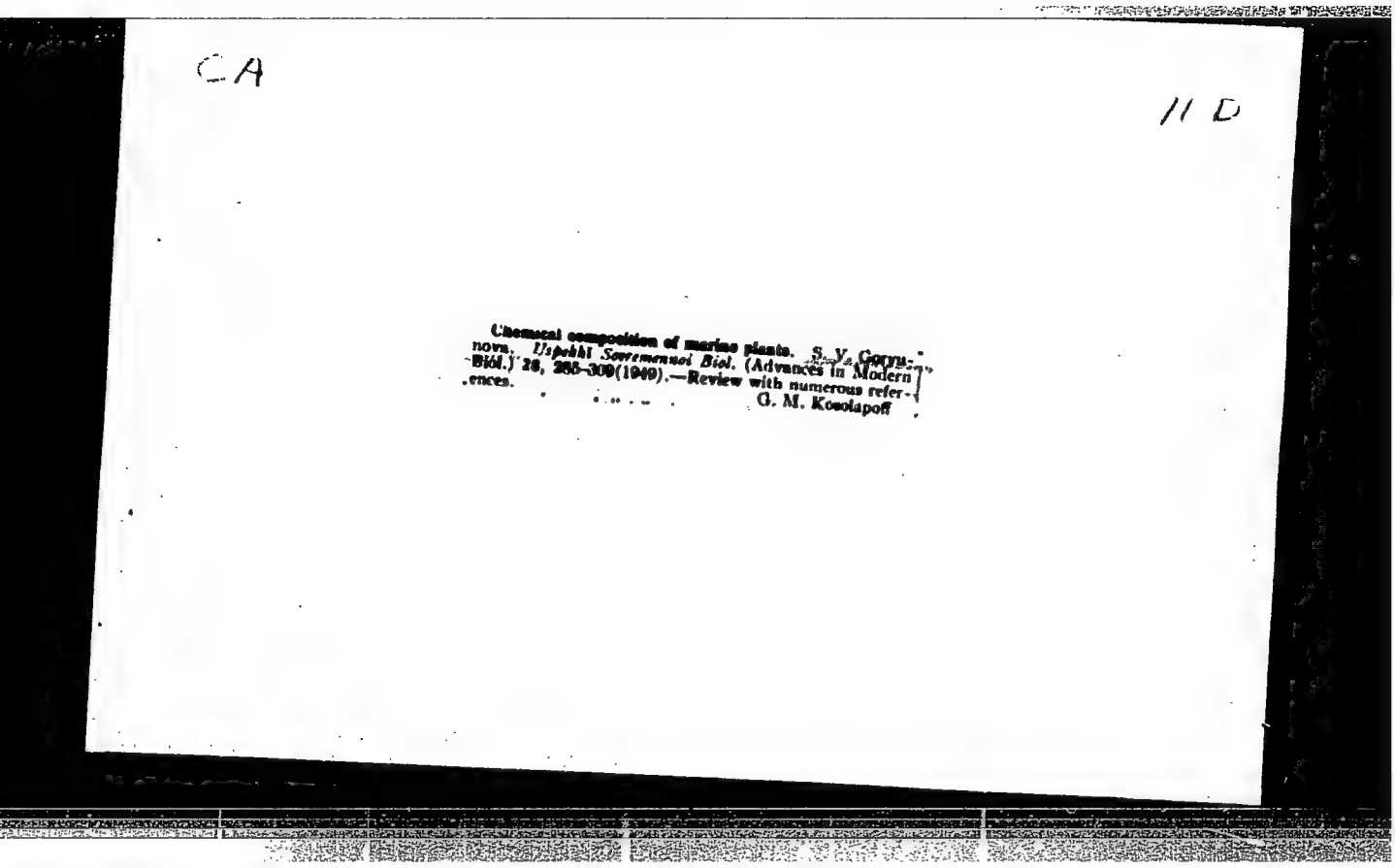
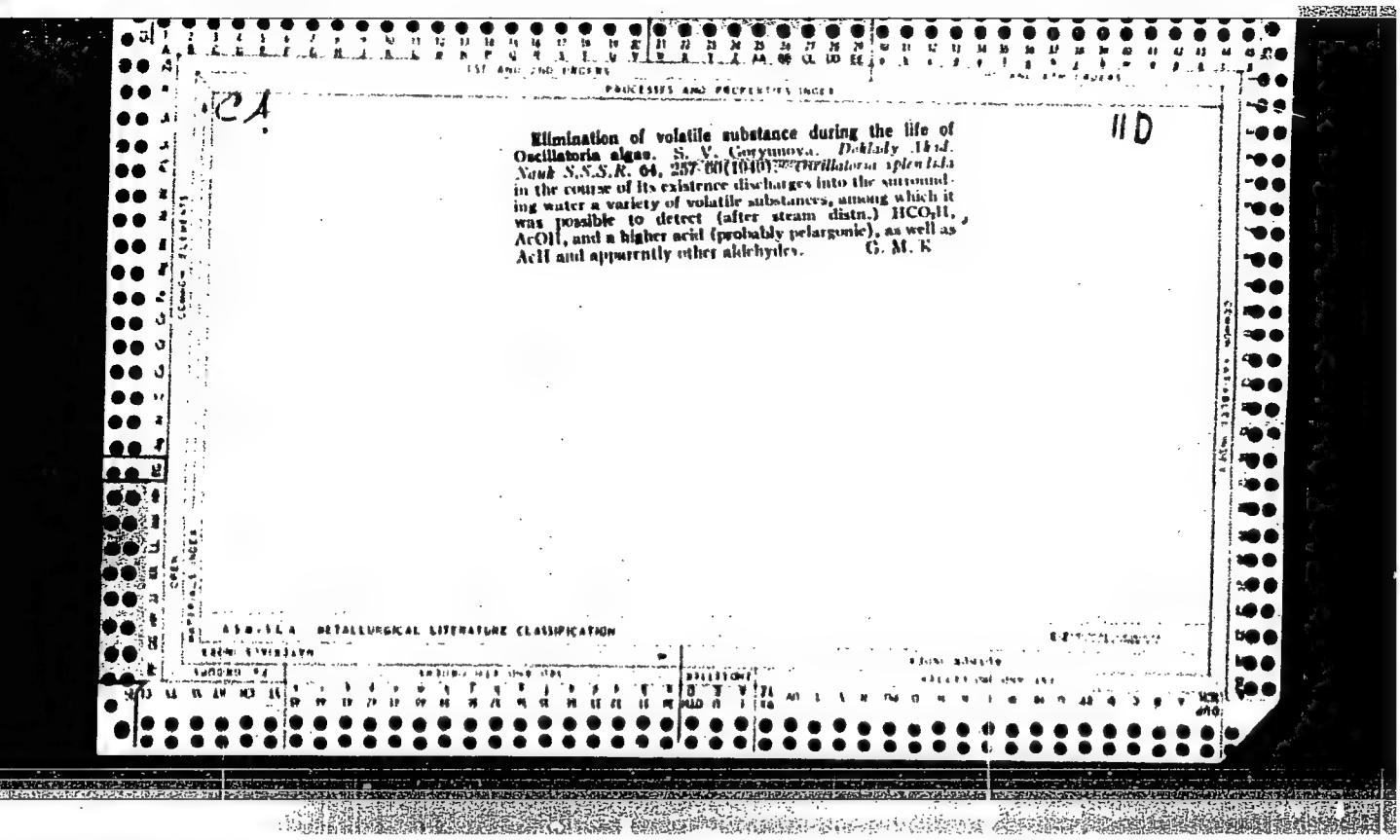


CA

11 D

Chemical composition of marine plants. S. V. Gorbunova. *Uspekhi Sovremennoi Biol.* (Advances in Modern Biol.) 28, 295–309(1949).—Review with numerous references.
G. M. Kosolapoff

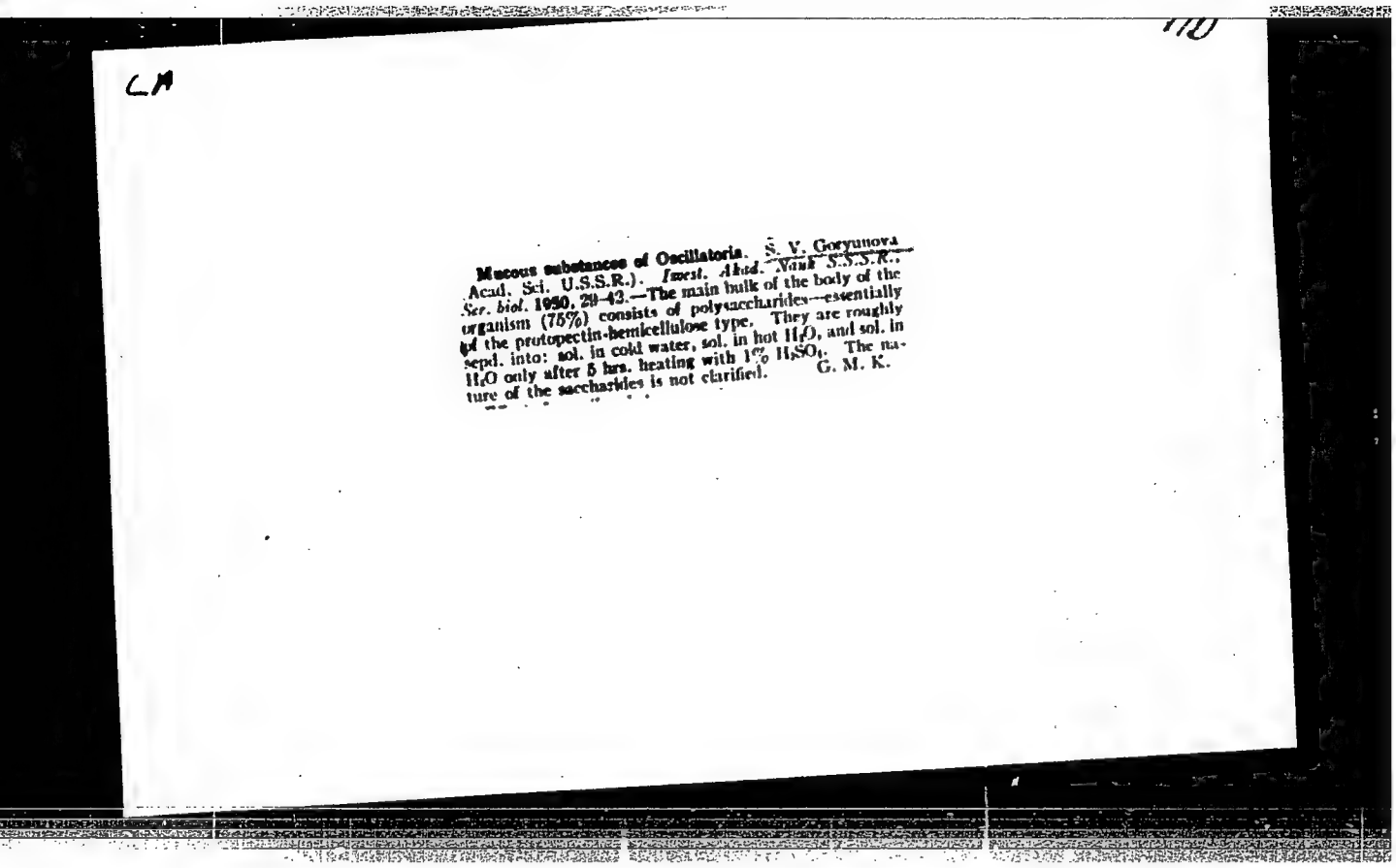


CA

11D

Elimination of volatile substance during the life of Oscillatoria algae. S. V. Gerasimova. *Doklady Akad. Nauk S.S.S.R.* 64, 257-60(1949). *Oscillatoria splendida* in the course of its existence discharges into the surrounding water a variety of volatile substances, among which it was possible to detect (after steam distn.) HCO_2H, AcOH, and a higher acid (probably pelargonic), as well as AcH and apparently other aldehydes. G. M. K

ASTIA METALLURGICAL LITERATURE CLASSIFICATION



CA

Mucous substances of Oscillatoria. S. V. Goryunova (Acad. Sci. U.S.S.R.). *Izvest. Akad. Nauk S.S.S.R., Ser. biol.* **1950**, 29–42.—The main bulk of the body of the organism (75%) consists of polysaccharides—essentially of the protopectin-hemicellulose type. They are roughly sepd. into: sol. in cold water, sol. in hot H_2O, and sol. in H_2O only after 5 hrs. heating with 1% H_2SO_4. The nature of the saccharides is not clarified. G. M. K.

GORYUNOVA, S. V.

"The Role of Algae in the Enrichment of Reservoirs by Dissolved Organic Substances." Sub 29 Dec 51, Inst of Microbiology, Acad Sci USSR.

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

GORYUNOVA, S.V.

GORYUNOVA, S.V. [redacted]

Application of fluorescent microscopy in determination of living and dead cells in algae. Trudy Inst. mikrobiol. no.2:64-77 '52. (MLRA 5:12)
(ALGAE,
determ. of living & dead cells fluorescent microscopy)
(MICROSCOPY,
fluorescent, determ. of living & dead cells in algae)

GORYUNOVA, S.V.

Characterization of dissolved organic substances in water of Glubokoye Lake. Trudy Inst. Mikrobiol., Akad. Nauk S.S.S.R. No.2, 166-79 '52. (MLRA 5:12)
(CA 47 no.16:8293 '53)

GORYUNOVA, S.V.

USSR.

Characterization of dissolved organic substances in water of Beloe Lake (White Lake). S. V. Goryunova. *Trudy Inst. Mikrobiol., Akad. Nauk S.S.S.R.* 3: 185-93(1954).—While Glubokoe Lake (in Moscow region) is rich in dissolved humic substances, Beloe Lake is also rich in humates but derives them from the activity of plankton and man, whereas Glubokoe Lake draws its humic material from surrounding swamps. In Beloe Lake some 50% of total org. matter was identified. Simple sugars are absent in both lakes, as is maltose; Beloe Lake is very low in starch. Cellulosic matter exists near the surface but is absent in the depths. High-mol. wt. satd. fatty acids are present. Most of the org. matter in soln. consists of polysaccharides.

G. M. Kosolapoff

GORYUNOVA, S. V.

"Substances Evolved During Normal Vital Activity of the Diatomous Alga Synedra sp.".
Tr. In-ta Mikrobiol. AN SSSR, No. 3, pp 194-200, 1954.

Study of the living cells of the diatomous alga Synedra showed that this alga gives off into the surrounding medium substances of a lipoid type amounting to 10% of the dry weight of the plant. The results of the study are significant for the explanation of certain questionable aspects of the lipoid theory of the origin of petroleum and other minerals.
(RZhBiol, No 10, 1955)

SO: Sum No 884, 9 Apr 1956

GORYUNOVA, S.V.

Seasonal growth and development in unicellular green algae. S. V. Goryunova and M. V. Nasonova (Inst. Microbiol., Acad. Sci. U.S.S.R., Moscow). *Mikrobiologiya* 24, 193-8(1955).—Green algae in lab. cultures show strict periodicity in growth patterns. In fall and winter the cycle can be greatly accelerated by irradiation from fluorescent lamps, white-light type, but periodicity persists even at constant temp., irradiation, and nutrient compn. It is also characteristic of other algae, including diatoms (e.g. *Synedra* and *Navicula*). Julian F. Smith

62

(1)

GORYUNOVA, S.V.

Predation in blue-green algae. Mikrobiologiia 24 no.3:271-274 My-Je '55. (MLRA 8:7)

1. Institut mikrobiologii Akademii nauk SSSR, Moskva.
(ALGAE)

GORYUNOVA, S.V.

MD

Amount and character of phytoplankton from Lake Beloe Ozero in different seasons. S. V. Goryunova and M. V. Nasmova (Inst. Microbiol., Acad. Sci., Moscow). *Mikrobiologiya* 24, 435–43(1955).—Sudden spring "blossoming" of phytoplankton is not a reliable indication of activity; a variety of conditions may mask the visible effects. Cellular development, from spores, may cover periods of 1–2 days to 2 months. The proportion of dead cells (chiefly of *Microcystis aeruginosa*) sometimes reaches 35% in summer. The Lake Beloe Ozero was chosen because its relative richness in sol. org. compds. supports a high rate of microbiol. activity while its hydrological and hydrochem. properties are exceptionally favorable.

Julian P. Smith

(1)

GORYUNOVA, S. V.

Some Regularities in the Development and Disintegration Processes of Algal Plankton in Far Eastern Seas.
The article reports on use of the luminescence analysis method in studying phytoplankton and concludes that the method is satisfactory. It was found that the peculiar hydrological conditions of the northeeastern section of the Okhotsk Sea induce a huge accumulation of dead diatoms (Bacillariophyta) in ooze deposits.

Oceanographic Research of the Northwestern Part of the Pacific Ocean, Moscow, Izd.-vo AN SSSR, 1958, 148 p. Its: Trudy, t.2.

This collection of articles reports the results of observations made in the Pacific by the Institute of Oceanology of the Academy of Sciences, USSR. In 1949, the Institue launched a systematic five-year program of scientific exploration of certain hydrographic peculiarities of the Soviet Pacific Area. The operations were carried out as a "Complex Oceanographic Expedition," using the Motorboat Vityaz' as its base. The Expedition worked in collaboration with the hydrographic Institute of the Soviet Navy (VMS), the Pacific Institute of Piscatology and Oceanography, and some 40 other institutes of the Academy of Sciences. Between 1949 and 1954, 18 trips were made, covering about 130,000 miles. Among the subjects of direct consern were: Meteorology, hydrology, oceanography, hydrochemistry, sedimentation, geography of the littoral, geology and contours of the sea bottom, fauna, plankton, microbiology, and gravimetry. Twenty-eight authors contributed to the collection which consists of 27 articles. There are: 6 gables, 23 diagrams, 3 illustrations (photographs of the littoral), 4 maps. There are no references.

GORYUNOVA, S.V., NASONOVA, M.V.

Effect of fluorescent lamps with various luminophores on the growth and development of the green alga Scenedesmus quadricauda [with summary in English]. Mikrobiologiia 27 no.5:581-587 S-O '58 (MIRA 11:12)

1. Institut mikrobiologii AN SSSR.

(ALGAE,
Scenedesums quadricauda, eff. of luminescent lamps with various luminophores (Rus))
(LUMINESCENCE,
eff. of luminescent lamps with various luminophores on Scenedesmus quadricuda (Rus))

GORYUNOVA, S.V.

Certain regularities in the development and disintegration of planktonic algae in the Far East seas. Trudy Okean. kom. 3:84-95 '58. (MIRA 11:8)

(Far East--Algae)

GORYUNOVA, S.V., KABANOVA, Yu.G.

Characteristics of autolytic decomposition of cells in some Peridinea [with summary in English]. Izv.AN SSSR.Ser.biol. no.4:431-438 Jl-Ag '58 (MIRA 11:8)

1. Institut mikrobiologii Akademii nauk SSSR.
(FLAGELLATA)
(AUTOLYSIS)

GORYUNOVA, S.V.

Characteristics of autolysis in diatoms. Trudy Inst.mikrobiol. no.5:199-205 '58 (MIRA 11:6)

1. Institut mikrobiologii AN SSSR.
(ALGAE,
autolysis of diatomic algae (Rus))

GORYUNOVA, S.V.; OSNITSKAYA, L.K.

Biological Institute of the Hungarian Academy of Sciences. Izv. AN SSSR. Ser.biol. no.6:942-944 N-D '60. (MIRA 13:11)
(HUNGARY--BIOLOGICAL RESEARCH)

GORYUNOVA, S.V.; OSNITSKAYA, L.K.

State of algology in the Hungarian People's Republic. Mikrobiologiia 29 no.6:938-939 N-D '60. (MIRA 14:1)
(HUNGARY--ALGAE--RESEARCH)

GORYUNOVA, S. V. (USSR)

Role of Diatomic Algae in Silicon Migration in Nature.

report presented at the 5th Int'l.
Biochemistry Congress, Moscow, 10-16 Aug. 1961

GORYUNOVA, S.V.; OSNITSKAYA, L.K.

Some investigations in the field of microbiology carried out in Hungary. Mikrobiologiia 30 no.2:374-376 Mr-Ap '61. (MIRA 14:6)
(HUNGARY—MICROBIOLOGY)

GORYUNOVA, S.V.; OVSYANNIKOVA, M.N.

Cultivation techniques for some marine diatom forms under laboratory conditions. Mikrobiologiia 30 no.6:995-997 N-D '61. (MIRA 14:12)

1. Institut mikrobiologii AN SSSR.
(ALGAE--CULTURES AND CULTURE MEDIA) (DIATOMS)

ORNITSKAYA, L.K.; GORYUNOVA, S.V.

First All-Union Conference on the Cultivation of Unicellular Algae.
Mikrobiologiia 30 no.6:1135-1138 N-D '61. (MIRA 14:12)
(ALGAE--CULTURES AND CULTURE MEDIA)

S/220/62/031/003/003/003
I016/I216

Author: Goryunova, S.V., and Ovsyannikova, M. N.

Title: METHODS FOR THE ISOLATION OF ACTIVE *CHLORELLA* STRAINS FROM NATURE

Periodical: *Mikrobiologiya*, v. 31, no. 3, 1961, 520–525

Text: A brief review of the Russian and foreign literature on methods of isolation of active *Chlorella* strains is given. A procedure used by the authors in mass-sampling of water and soil for the isolation of *Chlorella* is described.

Association: Institut mikrobiologii AN SSSR (Institute of Microbiology, AS USSR).

Submitted: May 30, 1961

Card 1/1